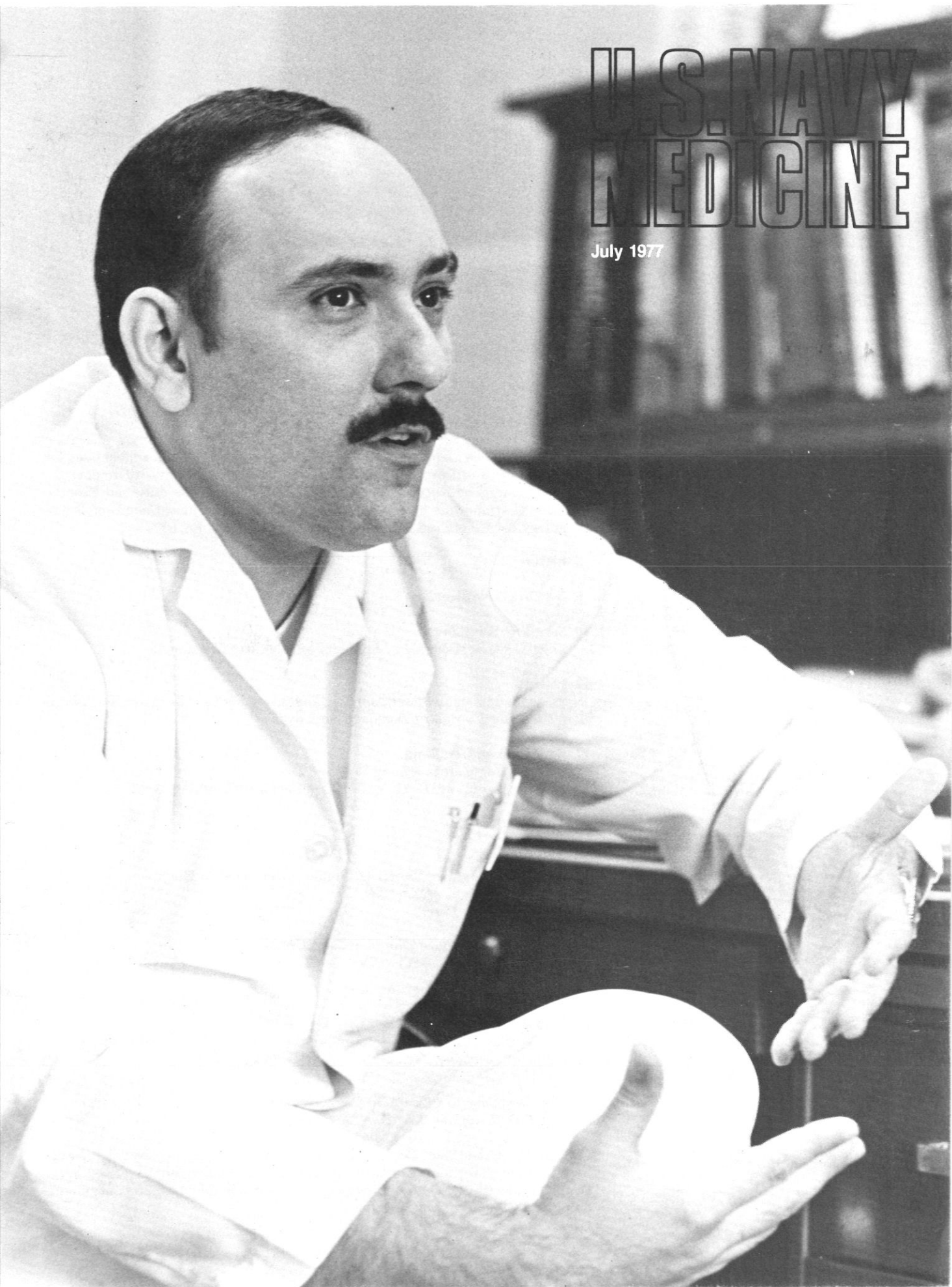


U.S. NAVY MEDICINE

July 1977



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U.S. NAVY MEDICINE

Volume 68, Number 7
July 1977

1 From the Surgeon General

2 Department Rounds

NAMRU-5 closes in Ethiopia . . . CAPT Brodine wins Conrad Award for scientific achievement

5 On Duty LT Celso Bolet: A doctor of the mind

6 Notes and Announcements

NNMC trauma management symposium . . . Dental continuing education courses . . . Dental correspondence course revised . . . Uniform changes for Nurse Corps officers . . . Dental officers trained in casualty treatment . . . Basic emergency medical instructor training . . . Active duty and Reserve medical symposium held at NRMCM Long Beach . . . Clinical neuro-otolaryngology course offered . . . MSC inservice selections for FY 77

8 Letters

9 NAVMED Newsmakers

10 Scholars' Scuttlebutt

ACDUTRA clerkships . . . Students tour NRMCM Jacksonville

12 Policy

Safety in flammable, nonflammable and mixed anesthetizing areas . . . Fees for records . . . Instructions and directives

17 Education and Training

Understanding Goes a Long Way

LT G.J. Spinks, MSC, USN; LT H.H. Belding IV, MSC, USNR

18 BUMED SITREP

19 Back When

Hospital Apprentice Robert H. Stanley: Hero Lost in History
ENS F.C. Brown, MSC, USN

20 Clinical Notes

Prepackaging Topical Ointments and Creams

LCDR L.L. Karch, MSC, USN

21 The Right Way to Thaw Meat

22 Professional

The Mediastinal Mass: A Continuing Challenge to the Thoracic Surgeon

CDR J.A. Gibbons, MC, USN; M.J. O'Sullivan, M.D.

CAPT R.G. Fosburg, MC, USN (Ret.)

27 Pulp Response to Citric Acid Cavity Cleanser

CAPT W.R. Cotton, DC, USN; R.L. Siegel, D.D.S.

COVER: LT Celso Bolet (MC), a resident in psychiatry at the National Naval Medical Center, is training to meet the Navy's needs in this important specialty. Dr. Bolet tells why he chose the Navy and the specialty of psychiatry, beginning on page 5. (Photo by Milt Putnam.)

From the Surgeon General

Summer of the Doctor Drought

THIS SUMMER marks the first real test of the all volunteer force Navy Medical Corps. Most of the physicians who joined us as a result of the doctor draft will have completed their service obligations, and many will leave the Navy. With their departure, Navy medicine faces what is perhaps its worst physician shortage in recent history.

The problem will be most severe from late June through mid September when almost all naval medical facilities will be short of their required number of physicians. Medical specialties with the severest shortfall are psychiatry, radiology, internal medicine, and family practice. Although the situation should gradually improve over the summer as new physicians report for duty, we expect a shortage to continue longer than it has in past years.

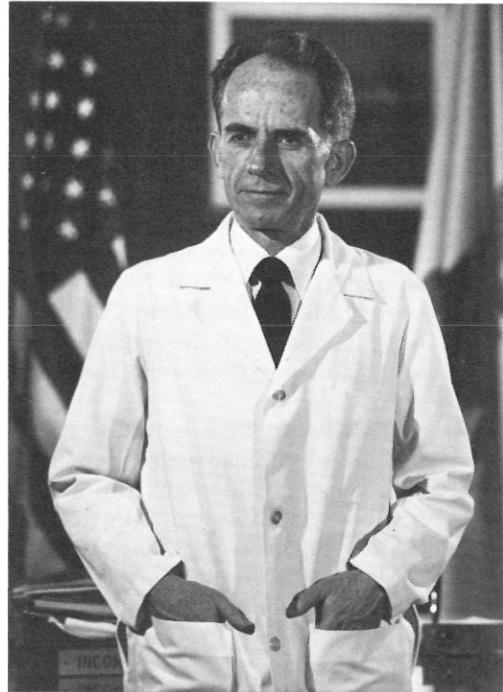
The shortage is expected to cause temporary reductions in services at most naval medical facilities. Full medical services must and will continue for active-duty Navy and Marine Corps members. However, at some facilities it may be necessary to limit care for dependents of active-duty personnel, and for retirees and their dependents; some of these patients may have to be referred to civilian medical facilities under CHAMPUS.

This difficult situation can be lightened considerably if all Medical Department members show exceptional concern and patience when dealing with our health care beneficiaries this summer. Navy and Marine Corps families should

be informed of the problem and, when necessary, helped to find alternate sources of health care. Through patient education programs, they should be encouraged to develop good health habits and to avoid using medical facilities for minor illnesses.

We can assure our patients that these temporary reductions in service are unavoidable. Individual medical facilities have drawn up plans for coping with the physician shortage with the least disturbance to patient care; here at BUMED, we will try to help seriously affected hospitals by assigning Reserve medical officers during active duty for training periods. While these efforts should help us through the immediate summer shortage, whether the Medical Department can return to its former level of service by fall depends upon the success of our physician recruiting and retention programs.

In a crisis such as this, our greatest asset is the good will and cooperation of our patients. When properly informed, the Navy family will be better able to deal with any necessary reductions in health care services, and can add their resourcefulness to our efforts to solve this problem.



VADM Arentzen

W.P. ARENTZEN
Vice Admiral, Medical Corps
United States Navy

Department Rounds

Research

NAMRU-5: 1965 - 1977

Naval Medical Research Unit No. 5 in Addis Ababa, Ethiopia, has been closed after nearly 12 years of operation.

The research unit was one of five U.S. Government facilities ordered closed on 24 April by the Ethiopian Government. Immediately after the order, most NAMRU-5 American staff members and their dependents flew to Athens, Greece, but the unit's administrative officer and a chief hospital corpsman were allowed to stay a few days to close the building. Research data has been shipped to the Naval Medical Research and Development Command in Bethesda, or to the individual investigators at their new duty stations.

NAMRU-5 had a staff of 69 people: 17 military members, 2 U.S. civilians, 52 Ethiopians and a British civilian. Commanding officer CAPT Raymond H. Watten (MC) and the seven officers and nine enlisted members who worked at NAMRU-5 have received permanent change of station orders to other activities. Several staff members have been assigned to the Naval Medical Research Institute in Bethesda, and one is now at NAMRU-2 in Taipei, Taiwan.

Opportunities. Established in December 1965 as a field unit of NAMRU-3 in Cairo, NAMRU-5 became a separate command on 1 July 1974, responsible for conducting research on infectious diseases in sub-Saharan Africa. Besides its base laboratory in Addis Ababa, NAMRU-5 operated a 22-bed clinical research facility at local St. Paul's Hospital, and a permanent field station at Gambela in the southwestern Ethiopian lowlands.

In Ethiopia, NAMRU-5 researchers found countless opportunities to

investigate tropical and subtropical diseases. By conducting extensive, carefully documented disease surveys and laboratory-based research, NAMRU-5 scientists filled a vital need for epidemiological and medical research on infectious diseases endemic to the country.

Early NAMRU-5 investigations first documented the presence of

chloroquine-resistant strains of *Plasmodium falciparum* existed in the country.

Fever. A major research focus at NAMRU-5 was louse-borne relapsing fever, which strikes an estimated 6,000 Ethiopians each year, killing some 40% of patients who go untreated. NAMRU-5 scientists confirmed that the spirochete which



NAMRU-5 staff member conducts tropical disease survey in Ethiopian lowlands

Trypanosoma rhodesiense in Ethiopia. NAMRU-5 scientists were the first researchers to isolate *Rickettsia conorii*, which causes boutonneuse fever, and *Coxiella burnetii*, the cause of Q fever in Ethiopia. Other firsts accomplished by the unit's investigators: the first report of *Necator americanus* (a New World variety of hookworm) infestation in Ethiopia, and the first discovery of malaria-causing *Plasmodium ovale* in Ethiopia. NAMRU-5 scientists also confirmed that no

causes this fever is sensitive to a small amount of most common antibiotics—but they also discovered that patients treated with these antibiotics have a potentially fatal Jarisch-Herxheimer reaction. NAMRU-5 researchers published 20 papers on louse-borne relapsing fever, becoming recognized worldwide authorities on the disease.

Malaria was also a central research topic at NAMRU-5. Researchers were conducting field evaluations to prepare for testing an

experimental malaria vaccine being developed at the Naval Medical Research Institute in Bethesda, and studying the natural immunity to malaria acquired as a result of infections.

Malaria was only one of many parasitic infections examined by NAMRU-5 researchers. Onchocerciasis ("river blindness"), a major health problem in the coffee-growing area of southwestern Ethiopia, caught the attention of the scientists, who looked into the distribution, prevalence and impact of the disease. Studies of 1,500 victims of elephantiasis revealed that in the Ethiopian highlands this parasitic infection is not caused by *Wuchereria bancrofti*, as had been believed. In 1967, NAMRU-5 scientists reported the first known cases of trypanosomiasis (sleeping sickness) in Ethiopia; within the next two years, this parasitic infection spread to epidemic proportions among scattered Anuak villages on the Gilo and Akobo Rivers of Illubabor Province. Throughout that time, NAMRU-5 survey teams combed the affected area to determine the distribution of the tsetse fly vector and the type of mammals which serve as reservoirs for the parasite.

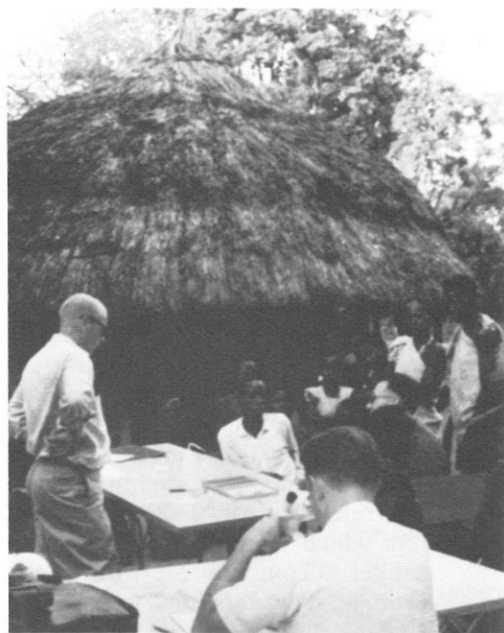
Disease vectors. NAMRU-5 researchers undertook a long-term program to study disease-carrying dipterous (two-winged) insects, which in Ethiopia transmit at least eight parasitic and viral diseases of man, including malaria and yellow fever. The goals: to map the distribution of dipterous insects known or suspected to carry human disease, assess these insects' vectorial capacities by virus isolation and experimental transmission studies, determine the biting behavior, seasonal incidence and breeding habits of species found to be major disease carriers, and establish colonies of those species for laboratory study. As part of this effort, NAMRU-5 researchers pre-

pared a catalog of mosquitoes found in Ethiopia and established laboratory colonies of four mosquito species. Progress was also made in determining whether yellow fever is transmitted by *Erethmapodites silvestris*, a mosquito widespread in the densely forested areas of southwestern Ethiopia.

Along with studies of disease-carrying insects, NAMRU-5 scientists conducted applied research on insect repellents, insect-attracting chemicals, and louse control. The researchers evaluated vulnerability to insecticides in field populations of mosquitoes, filth flies and black flies.

Research workers at NAMRU-5 identified several species of birds, bats, rodents, and amphibians which appear to transmit group B arboviruses. Arthropod-borne viruses were studied by conducting serological surveys to determine the occurrence of past infections, and by isolating the viruses from natural sources; as a result, several genically distinct arthropod-borne viruses previously unknown in Ethiopia were discovered.

Natural lab. The results of much of this research are complete enough to be published—but it will be hard to continue the work outside Ethiopia, NAMRU-5's "natural laboratory," say Medical Department



NAMRU-5 researchers investigate infectious diseases at field station

officials. "We retrieved all of the research data, and a number of publications will come from this material," predicted a spokesman at the Naval Medical Research and Development Command in Bethesda. "We'll try to continue some of the research at other Navy laboratories."

Meanwhile, NAMRU-2 in Taipei and its detachment in Indonesia, NAMRU-3 in Cairo, and the Naval Medical Research Institute in Bethesda, Md., will carry on the Navy's pioneering research on infectious diseases.

CAPT Brodine: A Standout in Navy Research

CAPT Charles E. Brodine (MC), since 1974 commanding officer of the Naval Medical Research and Development Command, has been awarded the Captain Robert Dexter Conrad Award—one of the Navy's highest honors for scientific achievement.

The Conrad Award is given annually by the Secretary of the Navy to an individual who has made an outstanding contribution to Navy research and development.

Dr. Brodine was honored for his contributions and achievements in managing the Navy medical re-

search program. As a Navy physician and researcher, he has managed research programs which produced frozen blood technology, better ways to treat shock, new equipment to resuscitate combat casualties, and preventive measures to decrease health hazards during recruit training. Not only have CAPT Brodine's efforts helped reduce mortality and morbidity in the armed services, but the results of his work are also being used in civilian health services throughout the world.

Recent achievements under CAPT Brodine's leadership include:

- a remote medical diagnosis system which enables shipboard personnel to communicate with physicians at shore facilities.
- a new hyperbaric research facility which will make possible research dives as deep as 3,400 feet. This laboratory will open in 1978.
- a low-cost synthetic wound cover.
- a noninvasive technique to estimate cardiovascular reserve in working or resting humans. With this technique, physiological heat exposure limits can be predicted for workers in many shipboard and industrial occupations.
- design and fabrication of a prototype life support stretcher for evacuating seriously injured casualties.
- successful tests of techniques for long-term freeze preservation of blood platelets.
- a new toxicology research program, in conjunction with the Air Force and the University of California.
- research into nerve regeneration and repair and into treatment of radiation injuries with bone marrow transplants.

Urgent need. CAPT Brodine, who joined the Medical Corps in 1954, began his career in medical research in 1962, when he was appointed director of the Bureau of Medicine and Surgery's frozen blood research project. At the time there was an urgent need for a better way to preserve, transport, and store large quantities of whole blood for treating combat casualties. Over

the next two years, Dr. Brodine demonstrated that reconstituted frozen blood cells can be used to help resuscitate casualties in combat areas. During this time, biochemists and biophysicists collaborated to study the nature and prevention of freeze-thaw damage to red cells; also working on the project were physiologists and clinicians who evaluated the functional state and clinical acceptability of the processed frozen red cell, and bioengineers who helped design equipment to store, transport and process the frozen blood.



CAPT Charles E. Brodine (MC)
Honored for research achievements

CAPT Brodine helped develop a complete system—from production through delivery—for getting frozen blood to field areas, and supervised the testing of frozen blood under combat conditions. He also assisted successful efforts to adapt a transportable field hospital for use as a forward-based laboratory where frozen blood could be processed close to the battle zone. For his work as director of the Frozen Blood Program, CAPT Brodine earned the Legion of Merit.

Another of CAPT Brodine's noteworthy contributions to Navy medicine was his direction of research on traumatic shock in combat casual-

ties. Under the Navy Shock Program, which CAPT Brodine started in 1963, problems raised by field physicians who had cared for combat trauma victims were studied in the Experimental Surgery Division of the Naval Medical Research Institute in Bethesda, Md. Researchers concentrated on the pathophysiology of hemorrhagic and septic shock. This program was extended to the field in 1965 when a surgical research unit was established at Naval Station Hospital DaNang, South Vietnam.

Better equipment. During his involvement in the Navy Shock Program, CAPT Brodine recognized the need for better life support equipment. He later supported two important contributions in this area: development of a prototype portable volume-controlled respirator, and development, test, and evaluation of a medical suction pump. Both items will be used widely by the medical departments of the Navy, Army and Air Force.

CAPT Brodine helped set up the Navy's program to screen recruits for sickle hemoglobin and glucose-6-phosphate dehydrogenase deficiency. Part of this research involved developing practical, inexpensive ways to test Navy and Marine Corps recruits for these medical problems, which can be aggravated by the physical stress of military training and operations. Later, CAPT Brodine began an investigation into the incidence of rhabdomyolysis at Marine Corps Recruit Training Center, Parris Island, S.C.

CAPT Brodine was born in Sioux City, Iowa, in 1925. He received his M.D. degree from Washington University School of Medicine, St. Louis, in 1953. He is an associate clinical professor of medicine at Georgetown University School of Medicine, Washington, D.C.

The Robert Dexter Conrad Award was named in honor of CAPT Conrad, a primary architect of the Navy's basic research program and first director of research for the Office of Naval Research.

On Duty

He's a Doctor of the Mind

Seventeen years ago Celso Goicoechea Bolet left his homeland in search of a freer way of life. Today, the 33-year-old Cuban immigrant believes he has not only found that way of life but "personal satisfaction and a feeling of camaraderie" as well.

Now a lieutenant in the U.S. Navy Medical Corps, Dr. Bolet is a resident psychiatrist at the National Naval Medical Center in Bethesda, Md.

"I was a psychiatric intern at Jackson Memorial Hospital in Miami, when I attended a psychiatric convention," Dr. Bolet says. "The Navy had a booth there with several Navy physicians explaining various aspects of the Navy's medical program. I listened to what they had to say, and decided that the Navy was what I was looking for."

Obstacles. Dr. Bolet recalls that there were obstacles to overcome in his quest to practice medicine.

"When I left Cuba, it was supposedly to continue my education in Jamaica. If I had told the Cuban government I wanted to leave the country for good, they would never have let me go."

After receiving permission from U.S. immigration officials to live in the United States, Bolet contacted a relative who was residing in Miami.

"I lived with an uncle in Miami for about a month and then moved to New York City," Dr. Bolet remembers. After holding various odd jobs in New York City for about nine months, he was reunited with his parents in Miami.

"It took quite some time but my parents obtained permission from the Cuban government and immigrated to the United States. Once I was with my parents in Miami, I enrolled at Miami-Jackson High School there. I completed my high

school education and one year of college at Miami Dade College before I enlisted in the U.S. Army."

Personalized medicine. After transferring to the inactive Reserve, Celso Bolet moved to Salamanca, Spain, to study at the University of Salamanca Medical School. He completed two years at that institution, then transferred to the University of Zaragoza, Spain, where he obtained his medical degree.



LT Celso Bolet (center) discusses a patient's chart with medical assistants at NNMC

"I chose to specialize in psychiatry in my fifth year of medical school because I felt it was a more personalized form of medicine," said the mustachioed physician. "I enjoy the intensity of the direct contact I have with my patients."

Returning to the U.S. in 1972, Dr. Bolet became a house physician for Miami Dade General Hospital and Cedars of Lebanon Hospital, and completed his internship at Miami's Jackson Memorial Hospital.

"More than some other medical fields, psychiatry demands total dedication to your patients," Dr. Bolet says. "It takes quite a bit of

time and understanding to help people with psychological problems, enabling them to function as they did before they acquired their problem."

Dr. Bolet adds, "Today people place less of a stigma on psychiatric patients than was the case years ago." He believes that psychiatric patients should be respected for undergoing treatment that should ultimately cure their problem.

Satisfaction. In his capacity as a resident psychiatrist, Dr. Bolet provides inpatient care to Navy and Marine Corps members and their dependents. "I enjoy my work," he says. "I enjoy the people I work with and I enjoy wearing the Navy uniform."

"I'm sure there's some psychological significance in getting satisfaction from wearing a Navy uniform, but as far as I'm concerned, I simply enjoy the feeling of knowing I'm helping defend this country's freedom."

—Story by Lon Cabot. Photos by Milt Putnam.

Notes & Announcements

TRAUMA MANAGEMENT SYMPOSIUM AT NNMIC

The Robert B. Brown Trauma Symposium will be held 30 Sept-1 Oct 1977 at National Naval Medical Center, Bethesda, Md. The symposium honors VADM Robert B. Brown, MC, USN (Ret.), former Navy Surgeon General and a national leader in surgery education. The latest advances in care of trauma patients will be discussed.

Advance registration is required, and attendance is limited to the first 300 applicants. Active-duty military personnel, students, and residents do not pay the registration fee, but must pay \$10 for two lunches. All other attendees must pay a registration fee of \$60, which includes lunch. An additional fee of \$20 will be required for the symposium banquet on 30 September.

The symposium has been approved for 12 hours of continuing education credit. Retirement point credit will be given to eligible Reserve officers.

For registration material and additional information write to LTJG Chris Edmond, MSC, USNR, Department of Surgery, National Naval Medical Center, Bethesda, Md. 20014.

DENTAL CONTINUING EDUCATION COURSES

The following dental continuing education courses will be offered in September and October 1977:

National Naval Dental Center, Bethesda, Md.

Operative dentistry	3-5 Oct 1977
Oral surgery	17-19 Oct 1977
Oral diagnosis and treatment planning	31 Oct-2 Nov 1977

Eleventh Naval District, San Diego, Calif.

Oral diagnosis	3-5 Oct 1977
Fixed partial dentures	17-19 Oct 1977

U.S. Army Institute of Dental Research, Walter Reed Army Medical Center, Washington, D.C.

Current concepts of restorative dentistry	12-15 Sept 1977
Preventive dentistry	25-28 Oct 1977

Armed Forces Institute of Pathology, Walter Reed Army Medical Center, Washington, D.C.

Forensic dentistry	3-6 Oct 1977
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Letterman Army Medical Center, San Francisco, Calif.

Removable prosthodontics	19-22 Sept 1977
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Requests for courses administered by the Commandant, Eleventh Naval District, should be submitted to: Commandant, Eleventh Naval District (Code 37), San

Diego, Calif. 92132. Applications for other dental continuing education courses should be submitted to: Commanding Officer, Naval Health Sciences Education and Training Command (Code 5), National Naval Medical Center, Bethesda, Md. 20014. Applications should arrive no later than six weeks before the course begins.

Cross-country travel and travel from outside the continental U.S. to attend dental continuing education courses generally will not be approved due to funding limitations.

DENTAL CORRESPONDENCE COURSE REVISED

The Dental Corps correspondence course, "Pharmacotherapeutics in Dental Practice" (NAVEDTRA 13110-A), has been revised to follow the new text, *Clinical Pharmacology in Dental Practice*, by S.V. Holroyd (St. Louis: C.V. Mosby Co, 1974).

In seven assignments, the course covers general principles of pharmacology, prescription writing, general and local anesthetics, sedatives and hypnotics, analgesics, tranquilizers, antibacterial agents, antihistamines, adrenal steroids, cardiovascular drugs, antiseptics and disinfectants, and fluorides. Special topics covered are emergency drugs, pharmacologic considerations for patients with systemic disease or common oral diseases, drug interactions, and drug abuse.

Reserve officers will receive 14 retirement points for the course: 12 points after completing assignments one through six, and two points after completing assignment seven.

Dental officers who wish to enroll in the course should submit form NAVTRA 1550/1 (Application for Enrollment in Officer Correspondence Course) to the Commanding Officer (Code 413B), Naval Graduate Dental School, National Naval Dental Center, Bethesda, Md. 20014.

UNIFORM CHANGES FOR NURSE CORPS OFFICERS

A forthcoming change to Navy uniform regulations for male Nurse Corps officers eliminates the indoor duty white uniform and prescribes the tropical white long uniform for ward duty. Under this change, shoulder boards will be worn with the working uniform instead of collar insignia. Authorization has been given to make the change before distribution of the new regulations.

In a recent revision to uniform regulations, two sentences were combined inadvertently, giving the impression that women may wear earrings with Navy uniforms. Small, single-pearl earrings may be worn only with dinner or formal dress uniforms; earrings are not authorized for wear with any other Navy uniform.

DENTAL OFFICERS TRAINED IN CASUALTY TREATMENT

Twenty Navy dental officers completed a casualty treatment training course held 4-8 April 1977 at Naval Regional Dental Center Norfolk, Va. In the course, dental officers learn emergency casualty treatment so they can augment medical efforts during combat. Similar courses are held at Great Lakes, Ill., and San Diego, Calif.

Attending the course were the following Navy dental officers: CDRs A.W. Branon, M.R. Felger, and J.E. Isaacs; LCDR P.G. Lynch; and LT M.P. Larson. Naval Reserve dental officers who completed training were LCDRs D.D. Johnson and J.W. Shoaff; and LTs G.E. Bennett, R.J. Butz, S.J. Cathers, T. Elzie, C.S. Fuller, P.F. Getty, J.W. Hutter, R.M. Reavis, S.P. Selwitz, K.Z. Taylor, J.P. Webb, W.K. Wexel, and P.M. Wiley. Dental officers monitoring the course were CDR W.P. Dunn, Jr., and LCDR F.H. Ewald.

BASIC EMERGENCY MEDICAL INSTRUCTOR TRAINING

Thirty Reserve hospital corpsmen completed the Basic Emergency Medical Instructor Training Program held 28 Feb-11 March 1977 at Phoenix College, Phoenix, Ariz. The course is designed to provide Naval and Marine Corps Reserve programs with instructors qualified to teach basic emergency medical training. Two more classes scheduled for this fiscal year are filled.

Five classes are being planned for FY78. Reserve corpsmen who want this training should apply for active duty for training through normal channels as soon as FY78 class dates are announced.



Paramedic explains use of telemetry equipment

ACTIVE DUTY AND RESERVE MEDICAL SYMPOSIUM HELD AT NRMC LONG BEACH

Every year for the past three years, Naval Regional Medical Center Long Beach and Naval Reserve medical units in the Long Beach area have held a joint medical symposium. The one-day programs are conducted by regular and Reserve naval medical officers, and are open to all military and civilian medical personnel (including physicians, dentists, nurses, and paramedics).

The third symposium, "Trauma," held 19 March 1977, attracted nearly 500 attendees representing 123 military and civilian hospitals. Topics discussed included emergency management of eye and limb injuries, bites and stings, the battered child syndrome, management of facial injuries, handling alcoholics in the emergency room, triage, and neurological and neurosurgical assessment of trauma. The symposium was accredited by the International College of Surgeons for eight hours of Category 1-AMA and Category 1-CMA continuing education credit.

RADM-selectee E.P. Rucci (MC), commanding officer of NRMC Long Beach, encourages other naval regional medical centers and their local Naval Reserve medical units to organize similar programs to promote cooperation between Reservists and active-duty personnel.

CLINICAL NEURO-OTOLARYNGOLOGY COURSE OFFERED

The University of Pittsburgh will offer its fourth continuing education course in clinical neuro-otolaryngology, 17-19 Nov 1977.

Subjects to be covered are: hearing problems, balance disturbances, review of pertinent anatomy and physiology (separate sessions for neurologists and otorhinolaryngologists), speech, swallowing, taste, olfaction, pain, facial nerves, and central nervous system complications.

For registration information, contact Sidney N. Busis, M.D., Division of Continuing Education, 1022 Scaife Hall, University of Pittsburgh School of Medicine, Pittsburgh, Pa. 15261. Telephone (412) 624-2653.

MSC INSERVICE SELECTIONS FOR FY77

The FY77 MSC Inservice Selection Board's recommendations for promotion to ensign in the Health Care Administration Section of the Medical Service Corps have been approved by the Bureau of Naval Personnel.

The selectees are: HMCs Richard L. Bloomquist, Robert V. Collins, Robert J. Engelhart, Denzel E. Garner, Craig Jimerfield, Elwood L. Kephart, Bernard T. Miller, James A. Moos, Charles W. Neeffe, Jr., and Herman J. Pagan; HM1s Robert A. Acklin, Mark E. Babbitt, Thomas W. Burden, Henry M. Chinnery, John D. Faulls, Robert P. Owen, and Michael W. Ross; DT1s Stephen F. Blacke, Lawrence E. Fowler, and Bobby D. Nipper.

Letters

RESERVE SPECIALTIES

Please excuse my long delay in commenting on "Reserve Specialty Support Capability," by CDR G.J. Hill, MC, USNR-R [US Nav Med 67(4):8, April 1976].

Two points interest me. One is the lack of identification of neurologists in the description of certified specialists. We are all apparently lumped with the psychiatrists, which is improper for planning as the tasks served are often totally unrelated.

The second point is the lack of identification of any specialists qualified in submarine medicine or diving medicine, while special comment is made for those in aviation medicine. No specialists are identified in occupational medicine, one of the largest operational medical fields within the military system.

I hope that these omissions do not reflect a lack of need or of concern for future planning, but are only an oversight.

CAPT H.W. Gillen, MC, USNR-R
Wilmington, N.C.

The author replies: *Neurologists and psychiatrists are classified separately by the American Board of Psychiatry and Neurology. Unfortunately, I did not notice the notation in the directory when I reviewed the credentials of Navy Reservists who responded to the OPO5R study. Access to the OPO5R information is now closed because of the Freedom of Information Act, and for the same reason I have destroyed all my notes and computer sheets which related to that study. The information described by CAPT Gillen is available to BUMED (Code 36), and is utilized in planning.*

Space limitations made it impossible to tabulate all the capabilities and interests of the reporting physicians, and my published report therefore does not include qualifications in occupational medicine. This information is available in the original OPO5R data sheets; however, it is probably incomplete since the responding officers exercised considerable individual variation in the completeness of their responses, and in some cases gave little more than their name, address, and major medical specialty. It is my recollection that relatively few indicated a special qualification in submarine medicine, and few or

none specified a qualification in diving medicine, so I expect that an analysis of qualifications of Reserve medical personnel for those specialties would have to be done on a new questionnaire.

BUMED Code 36 adds: *There are at present no Selected Reserve mobilization assignments in neurology, although proposed programs for FY78 will include four neurologists.*

With regard to submarine and diving medicine, only six billets are shown in the Selected Reserve, all of them for captains in Program 1, the Submarine Forces Program. In contrast, there are 160 billets for flight surgeon/aviation medical officers. Billet strength in Reserve communities is established by the major manpower claimant.

Occupational medicine, a specialty of the shore establishment, is not currently addressed in the Selected Reserve, although in later stages in mobilization there will be a requirement for augmentation from the Individual Ready, Standby or Retired Reserve, or from the civilian community.

TOP RECRUITERS

We were extremely pleased to see the article on HMCS Larry DuFrain and his success in medical recruiting [US Nav Med 68(4):20, April 1977]. It is heartwarming to see a publication of this caliber give deserved recognition to the hardworking and sometimes maligned members of the Recruiting Command who are attempting to "man the fleet."

We do not wish to impugn the credibility of your sources. However, we at Navy Recruiting District New York feel most confident in stating unequivocally that we can "top" that. LT Robert R. Buckley, Jr., of the Navy Nurse Corps, was this command's medical programs officer for FY76, and he commissioned 17 physicians and seven nurses for that same time period.

While we give an enthusiastic "well done" to HMCS DuFrain for his outstanding efforts, we feel fully justified in claiming for LT Buckley the distinction of being "top dog." If there is another "top dog" out there, let him show us the error of our way!

CAPT Richard A. Stratton, USN
Commanding Officer
Navy Recruiting District New York

According to Navy Recruiting Command, LT Buckley did indeed recruit the largest number of physicians last year, so he is the top recruiter in that respect. HMCS DuFrain recruited 200% of his physician goal, and so was top recruiter from the percentage point of view. CRUITCOM did not specify which of the two men they consider "top recruiter." They say both men are tops, and we agree.

OUTMODDED TRADITION

VADM Arentzen's message about the realities of alcohol [US Nav Med 68(4):1, April 1977] is a courageous statement against an outmoded and unhealthy tradition.

Another outmoded and unhealthy "tradition" is that of smoking. All physicians are aware of the realities of smoking, for many of their patients suffer from smoking-induced diseases. The cost to the government, in terms of medical treatment, absenteeism, and disability compensation, is enormous. Yet, our patients see little evidence of our concern. The people they first see at the information desk are often smoking. They see physicians and other medical personnel smoking. They can buy cigarettes at the hospital's Navy Exchange or from a machine. Isn't it strange that our hospitals dispense both health care and health hazards?

I hope that a future message will address the realities of smoking.

CDR Lawrence R. Rubel, MC, USN
Chief, Laboratory Service
NRMCM Great Lakes, Ill. 60088

A BUMED-sponsored campaign against smoking is in the works.

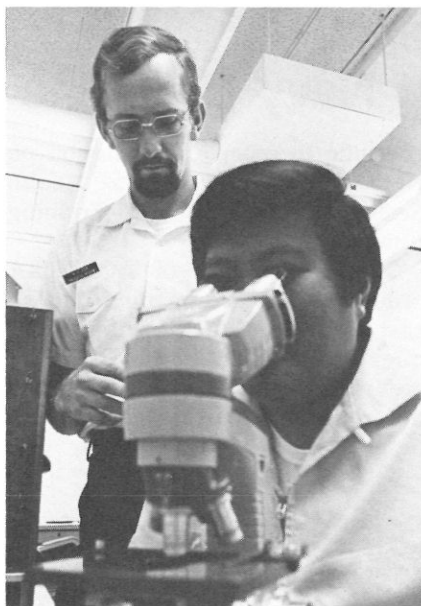
Your letters help us keep **US Navy Medicine** responsive to your needs. Send letters to:
U.S. Navy Medicine
Department of the Navy
Bureau of Medicine and Surgery
23rd and E Streets NW
Washington, D.C. 20372

NAVMED Newsmakers

When you're an optometry technician standing a mere 4 feet 7 inches and your patient's a towering 7-foot Marine, how do you get his glasses from your hand to the bridge of his nose? It took some ingenuity, but **HM3 Susie Sharp** proved that no optical problem is out of her reach. She hopped on a counter top in the NRMC Camp Pendleton branch clinic and slipped **LCPL Ken Cutler's** specs into place. Obviously it was no mistake to give this resourceful hospital corpsman the height waiver she needed to join the Navy.

"Faster than a disease-spreading rodent—more powerful than unwashed hands—able to leap tall sanitation problems in a single bound!!!" That's how the Atlantic Military Sealift Command magazine *Mariner* describes **HM1 Mark Cook**, one of only three preventive medicine technicians serving with the command. In *Mariner's* February issue, **HM1 Cook** reveals that he spends much of his time getting shipboard personnel to watch for potential hazards. When people begin to relax, he says, "they don't follow instructions, and trouble usually results." On one ship, crewmembers forgot to flush out the pier's fresh water line. "What they got was water tasting like diesel fuel," says **HM1 Cook**, who corrected the problem before anyone became ill.

Although **LCDRs Charles McLaughlin (MC)** and **Judy McLaughlin (MSC)** are stationed at shore-based Naval Aerospace and Regional Medical Center in Pensacola, they spend a lot of time at sea as owners of the 42-foot sloop *Aggressive*. Representing Navy Yacht Club Pensacola, the McLaughlins recently took first overall in the Gulf Ocean Racing Conference, defeating some of the toughest competition in sailing. When not racing,

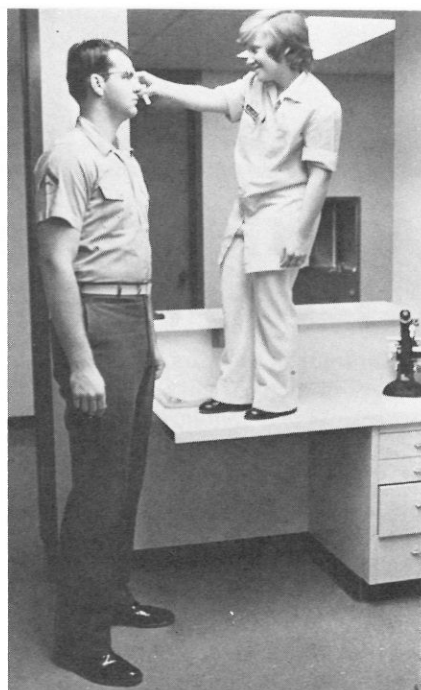


HM1 Cook (standing): Diesel cocktail

Chuck is a family practice physician, while Judy heads the Physical Therapy Branch at the medical center.

If you're a Medical Department runner, you have lots of company: ten NRMC Oakland staff members recently ran a grueling 26-mile marathon in less than 4 hours, with **HM2 Terry Noyes** finishing in 2 hours and 52 minutes. Also in California, retired Navy surgeon **CAPT Paul E. Spangler**, age 78, earned a mention in *Time* magazine after finishing the San Francisco Bay to Breakers race—7.6 miles—in just over an hour. Dr. Spangler is limbering up for the 1977 worldwide amateur runners' championships in Sweden. Not to be outdistanced was Reservist **CAPT George J. Hill (MC)**, who joined SECNAV's 20-Minute Club after running three miles in 19 minutes and 42 seconds.

A round of applause for: **HN Dalton Lee** who, by thinking clearly and acting fast, saved a choking victim's life aboard the *USS Constellation* . . . **CAPT Norman V. Cooley (MC)**,



HM3 Sharp: Tall order



McLaughlins: Tough competition

director of BUMED's Naval Reserve Division, presented the Gold Wreath Award by the Navy Recruiting Command for excellence in recruiting . . . **RADM Robert L. Baker (MC)**, recently elected assistant secretary of the American College of Obstetricians and Gynecologists . . . and **LCDR Hunter A. McKay (MC)**, urology resident at NRMC Oakland, first prize winner in the Third Annual Northern California Urology Residents Seminar.

Scholars' Scuttlebutt

ACDUTRA Clerkships: A Close-Up Look At Navy Medicine

Summer is upon us, and with it a surge in active duty for training orders. Navy scholarship students may serve their ACDUTRA period at other times during the year, but because of the traditional summer hiatus at most schools, students usually enter ACDUTRA assignments in the summer quarter.

Some of you will be serving your ACDUTRA period this summer in clinical or research clerkships at Navy medical facilities. These clerkships are often your first contact with the Navy and we are well aware that your experiences during this time will have a lasting effect on your view of the Navy health care system as a potential career vehicle. Therefore, we make clerkship training meaningful from the military as well as the professional point of view by devoting significant parts of the curriculum to active naval service and to military health care. Clerkship clinical rotations and research experiences are carefully planned to fulfill your professional and academic requirements, within the training command's resources and mission.

Clerkship programs are conducted at naval regional medical and dental centers, naval hospitals, and Medical Department research activities in the United States and Puerto Rico which have the required training capabilities. Generally, first-year and second-year students will not be assigned to clinical clerkships; however, third-year and fourth-year students are eligible for both clinical and research clerkships. Clerkships are assigned according to the quotas established at training sites. Starting in 1978, a list of clerkships available at each training facility will be published annually in a BUMED notice. In the meantime, scholarship students will

continue to receive information on clerkships from the Naval Health Sciences Education and Training Command.

The first receipt of ACDUTRA orders can be a daunting event. To cast some light on the subject, we offer an annotated set of ACDUTRA orders (see chart). A more detailed description of your assignment will be provided with your orders.

Students Tour NRMC Jacksonville

"I was impressed with the morale of hospital staff members and of doctors serving on the USS America."

"I learned a great deal about what I can expect and what will be expected of me."

Those were some of the comments made by Navy scholarship students from St. Louis University School of Medicine after they spent the weekend of 6-8 May at Naval

Regional Medical Center Jacksonville, Fla., learning about Navy medicine. The two-day orientation emphasized operational medicine—new material for most of the 15 students, few of whom had ever seen a Navy medical facility.

After touring the Jacksonville medical center and conferring with family practice physicians, the group headed for Naval Air Station Cecil Field. There they toured an aviation physiology training unit and the new branch clinic, and visited an S-2 submarine chaser squadron.

The group then returned to Naval Air Station Jacksonville, where they were briefed on the P-3-C ASW aircraft and the duties of a P-3 squadron flight surgeon. The day ended with a party, where students could talk with Navy medical officers.

At Naval Air Station Mayport the following day, the group toured the new branch clinic with CAPT Harriet Simmons (NC), officer-in-charge, as their guide. A talk with the medical officer aboard the destroyer tender USS *Yosemite* and a visit aboard the carrier USS *America* wrapped up the indoctrination trip.

—Story and photo contributed by RADM Matthias H. Backer, Jr., MC, USNR-R.



Students learn about duties of the P-3 squadron flight surgeon

THESE ORDERS ARE ISSUED BY THE COMMANDING OFFICER,
NAVAL HEALTH SCIENCES EDUCATION AND TRAINING
COMMAND (NHSETC), LOCATED AT THE NATIONAL NAVAL
MEDICAL CENTER (NNMC), BETHESDA, MARYLAND.
YOU ARE ATTACHED TO THIS UNIT

ACCORDING TO PUBLIC LAW 92-426,
ALL ENSIGNS, REGARDLESS OF
PRIOR SERVICE, ARE PAID IN
OFFICER GRADE #1 (O-1) DURING
ACTIVE DUTY FOR TRAINING.

YOUR GRADE, NAME, AND ADDRESS.
MAKE SURE HSETC CODE 14
HAS YOUR CURRENT ADDRESS SO
YOU GET ORDERS PROMPTLY

ACDUTRA LASTS 45 DAYS

PHYSICAL EXAM FORMS 88 AND 93
MUST BE COMPLETED BEFORE
REPORTING FOR DUTY

MAKE YOUR OWN TRAVEL
ARRANGEMENTS.
REIMBURSEMENT IS ON
A RECEIPT BASIS.

NAVAL FINANCE CENTER (NFC)
CLEVELAND, OHIO,
STOPS STIPEND DURING ACDUTRA.

DO NOT BUY A UNIFORM
BEFORE FIRST ACDUTRA.
REPORT IN JACKET AND
TIE. UNIFORM
INFORMATION GIVEN
AFTER YOU REPORT.

YOUR SERVICE DESIGNATOR
IS ENSIGN 1975

SOCIAL SECURITY NUMBER

ON JULY 1, 1976, AT 8 AM,
REPORT TO THE SPECIFIED
COMMAND

ACCOUNTING INFORMATION

PHYSICAL EXAM IS NECESSARY
TO REPORT FOR ACDUTRA

HAVE THE OFFICER OF THE
DECK (OOD) SIGN YOUR
ORDERS ON ARRIVAL

LIVING EXPENSES (PER DIEM)
AUTHORIZED UP TO THIS AMOUNT.
REIMBURSEMENT IS ON A RECEIPT
BASIS. YOU ARE NOT ELIGIBLE IF
BACHELOR OFFICER QUARTERS (BOQ)
ARE AVAILABLE.

ACDUTRA ORDERS (formerly NAVPERS 1571/5 (2-73)/ CNAVRES 1571/5 (10-75) NAVCOMPT 2120 (Rev. 3-72))		DATE:	
COMMANDING OFFICER, NAVAL HEALTH SCIENCES EDUCATION AND TRAINING COMMAND, NATNAVMEDCEN, BETHESDA, MARYLAND 20014		FAN	SDN
UNIT ATTACHED AND LOCATION NHSETC, NNMC, BETHESDA, MD. 20014		00	N341167TTOH
GRADE/RATE/NAME AND OFFICIAL ADDRESS		COMMAND DELIVERING ORDERS (if other than originator)	
ENS. JOHN H. DOE 123 STAR DRIVE PHILA., PA. 19147		PAY GRADE/PEBD 01*	DESIGNATOR/NEC/SSN 1975 031-77-777
		ANNUAL ACDUTRA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	PAY GROUP <input checked="" type="checkbox"/> K
		SECURITY CLEARANCE (based on/date)	
		MOB BILLET (Officers Only)	
1. Report to the NEAREST ARMED FORCES ACTIVITY FOR CERTIFICATION for physical examination, including flight physical when active duty for training (ACDUTRA) involves flying, not more than 30 days prior to ACDUTRA reporting date. If found not physically qualified these orders are cancelled.			
2. NO. OF DAYS <input checked="" type="checkbox"/> WITH PAY <input type="checkbox"/> DIFOT AUTH <input type="checkbox"/> WITHOUT PAY (Enlisted Only)		ACIP AUTH: (Officers Only) <input type="checkbox"/> DIFOPS <input type="checkbox"/> DIFDEN	
45		REPORT (Date) NO LATER (Time) 01 JULY 76 0800	
REPORT TO: COMMANDING OFFICER, NAVAL REGIONAL MEDICAL CENTER, CHARLESTON, SOUTH CAROLINA 29403 DETACH ON 15 AUGUST 1976.			
SEE ATTACHMENT FOR TRAVEL INSTRUCTIONS AND REQUIREMENTS FOR PHYSICAL EXAM (PHYSICAL EXAM TO BE CONDUCTED IN ACCORDANCE WITH CHAPTER 8, AR 40-501). IF THESE ORDERS ARE FOR 14 DAYS, TRAINING ACTIVITY WILL EFFECT DETACHMENT TO ENSURE COMPLETION OF 14 DAYS ACDUTRA EXCLUSIVE OF TRAVEL TIME. UPON COMPLETION OF ACDUTRA RETURN TO THE PLACE TO WHICH THE ORDERS ARE ADDRESSED.			
3. Failure to comply with these orders without prior cancellation by competent authority may result in disciplinary action and/or administrative action affecting your status in the Naval Reserve.			
4. You will be in a duty status for the no. of days of ACDUTRA performed plus the time necessary to travel to and from your duty station not in excess of the allowable constructive time as prescribed in Joint Travel Regulations. While in a duty status you are subject to the Uniform Code of Military Justice.			
5. Auth. to travel by commercial transport. (TR's and meal tickets furnished) Directed to travel by government conveyance when available.			
<input checked="" type="checkbox"/> XXXX Authorized to travel at your own expense subject to reimbursement Authorized to travel at your own expense NOT subject to reimbursement			
6. If these orders are without pay, you are entitled to allowances for subsistence and quarters. NOTE: If these orders do not provide for pay, travel reimbursement, and allowances and you do not desire to bear this expense, the orders are revoked.			
7. MEMBER IS <input type="checkbox"/> IS NOT <input type="checkbox"/> ENTITLED TO BAQ WITH DEPENDENTS.			
8. COST OF TRAINING IS CHARGEABLE AS FOLLOWS: PAY/ALLOWANCES			
17T1405 2232 000 34116 1 000166 2D 000000 71770000X44T			
TRAVEL 74770000X44T			
UNIFORM: 72770000X44T			
PER DIEM 74771000X44T			
TRANSPORTATION AND MEAL TICKETS FURNISHED		SIGNATURE OF ISSUING OFFICER	
*PL 92-426 PERMITS PAYMENT OF OI ONLY.		G. S. BAKER	
ESTIMATED TRAVEL: \$150		LTJG MSC USNR	
FOR NFC CLEVELAND - STOP STIPEND ON 30 JUN 1976		BY DIRECTION OF THE	
START STIPEND ON 10 AUG 1976		COMMANDING OFFICER	
THE WEARING OF THE UNIFORM IS REQUIRED			
PHYSICALLY QUALIFIED FOR ACDUTRA	YES NO	DATE	SIGNATURE OF MEDICAL OFFICER
PHYSICALLY EXAMINED AND QUALIFIED FOR RELEASE	YES NO	DATE	SIGNATURE OF MEDICAL OFFICER
TRAINING ACTIVITY ENDORSEMENT	YES NO	DATE & HR REPORTED	SIGNATURE OF COMMANDING OFFICER
GOVERNMENT QUARTERS AVAILABLE	YES NO	DATE & HR DETACHED	SIGNATURE OF COMMANDING OFFICER
GOVERNMENT MESS AVAILABLE	YES NO		SIGNATURE OF DISBURSING OFFICER
VOUCHER NO.	D.O. SYMBOL NO.		
DATE:	NET AMOUNT PAID		

Annotated Active Duty for Training Orders

Safety Tips

Safety in Flammable, Nonflammable and Mixed Anesthetizing Areas

CDR John P. Swope, MC, USN, BUMED Code 416

In the previous issue, *US Navy Medicine* offered a summary of a portion of the National Fire Protection Association standard, *Inhalational Anesthetics* (NFPA 56A) that deals with general requirements for all hospital anesthetizing locations. In this issue, we cover the specific requirements in NFPA 56A for flammable, non-flammable, and mixed anesthetizing locations.

FLAMMABLE LOCATIONS

The prime hazard in flammable locations is combustion. Combustion can be either an explosion or a fire—the difference is in the rate of combustion and the energy released. To produce an explosion or fire there must be:

- Fuel or a flammable anesthetic agent.
- Oxygen or another substance such as nitrous oxide which will support combustion.
- An ignition source.

In hospitals with flammable anesthetizing areas, flammable agents and oxygen are part of the anesthetic mixture and cannot be eliminated. Therefore, the only ways to prevent an explosion or fire are to contain the explosive anesthetic mixture in certain carefully regulated "hazardous" areas and to eliminate sources of ignition such as electrostatic sparks, arcs from electrical fixtures, and open flames.

Containing the explosive mixture: All operating room areas from the floor up to five feet are considered to be hazardous because flammable anesthetics, which are heavier than air, drop to the lowest part of the room. The patient is usually placed on an operating table some three feet above the floor, so there is a two-foot margin of safety above the patient to allow for air turbulence, which may spread the anesthetic mixture.

Areas in the operating suite, such as corridors, sterilizing rooms, scrub rooms, and X-ray control rooms, are not considered hazardous if they are separated from operating rooms or flammable anesthetizing locations by a door that can be closed. Operating suites should be ventilated in accordance with the *National Electrical*

Code. Ventilation may dilute the explosive agent enough so that it is no longer flammable. Anesthetic recovery rooms are not considered hazardous locations unless they are used specifically for induction of inhalation anesthesia with flammable agents.

According to NFPA 56A, storage spaces must be ventilated by gravity or by mechanical means at a rate of not less than eight air changes per hour. The fresh air inlet must be located near the ceiling and the exhaust located three inches above the floor. Since most flammable agents are heavier than air, the flammable gas will sink to floor level, where it will be sucked out through the exhaust vent. NFPA 56A also directs that exhaust air must be discharged to the outside of the building, at least 12 feet above ground, to prevent its reentry into the building. If exhaust fans are used, they must have nonsparking blades and the fan motor must be connected to the emergency electrical system. All electrical installation within the storage area must be explosion-proof; specifications for explosion-proof electrical equipment are in the *National Electrical Code* (NFPA 70) in the section on hazardous locations, Class 1, Group C, Division 2 type equipment.

Piping flammable anesthetic gases is prohibited, because if there is a leak in the piping system, any area of the hospital can develop an explosive atmosphere.

Controlling ignition sources: Open flames and smoking are prohibited in flammable locations. Elimination of electrostatic charges is accomplished by providing routes for these charges to dissipate, thereby preventing charges from building up. Humidity is used in operating rooms because it provides a moist film on nonconductive surfaces to bleed off any electrostatic charge. Flammable anesthetizing locations must have a relative humidity of not less than 50% at a temperature of 70°F, plus or minus 5°F.

Conductive flooring equalizes electrostatic charges on personnel and equipment in the operating room. This flooring is installed in hazardous locations and extends at least 10 feet outside the door of the flammable anesthetizing location to bleed off any electrostatic

charge from a person's body before that person enters the room. The floor's average resistance must be between 25,000 and 1 million ohms; NFPA 56A describes the test for measuring this resistance. Resistance must be measured at least once a month, and a permanent record must be kept of the readings.

Accessories such as operating table covers, stretcher pads, pillows, and cushions must be made from conductive material. Items required for anesthesia or surgery must also be conductive, including re-breathing bags, head straps, and face masks, as well as operating room furniture. Conductive shoes or shoe coverings must be used, and must have a resistance value under 500,000 ohms. Silk, woolens, synthetic materials, cotton, rayon, and nonwoven materials are not permitted in the hazardous area as they may generate an electrostatic spark.

Control of electrical equipment that may generate arcs and sparks is another important element in safety strategy. An isolated electrical system, with explosion-proof receptacles and attachment plugs, is required.

Ceiling-suspended fixtures, such as the operating room light, shall not suspend into the hazardous area below the 5-foot level in the operating room. If the fixture is enclosed, the enclosure cannot enter the hazardous area unless it is approved for use in hazardous locations. Fixtures located above the hazardous location must be installed so that, whatever the fixture's position, no sliding contacts or arcing or sparking parts extend into the hazardous location. X-ray tube heads and tables and X-ray equipment installed permanently in flammable anesthetizing locations must be approved for hazardous locations. The exceptions are:

- Equipment designed to operate on eight volts or less.
- Portable electrical or electronic equipment mounted in an enclosure and protected by an approved positive pressure ventilation system. Enclosures must be supplied with air from a nonhazardous location. The air must be circulated to maintain, within the enclosure, a positive pressure of at least one inch of water above the pressure of the hazardous area's atmosphere. The enclosure must have a means (such as an interlock) to shut off the electricity if room temperature exceeds 60°C or 150°F, or if the pressure falls.
- Equipment mounted on a stable stand which elevates the primary electric or electronic portion of the unit at least five feet above the floor.
- Equipment that is intrinsically safe because it is incapable of releasing sufficient electricity to ignite inflammable anesthetic mixtures.

Another source of ignition is the electrosurgical unit, which provides a high-frequency spark. NFPA 56A prohibits the use of electrosurgical units in the area of the head, neck, and oropharynx while flammable anesthetizing agents are being administered. The decision to use flammable agents during electrosurgery in other parts of the body should be based on good medical reasons. If flammable agents are administered during

electrosurgery, the patient should be draped to provide a barrier that will prevent flammable mixtures from escaping into the area where the electrosurgical equipment is being used.

NFPA 56A addresses the use of window-type temperature-regulating units or air conditioning units. There should be a vertical divider in each unit, so the atmosphere in the room cannot come in contact with the unit's compressor or motor.

NONFLAMMABLE LOCATIONS

Requirements for nonflammable anesthetizing locations are described in the section of NFPA 56A dealing with all anesthetizing locations (see *US Navy Medicine*, June 1977). Nonflammable anesthetizing locations shall have a sign prominently posted at all entrances to inform personnel that flammable anesthetizing agents are not to be used in the area. The flooring in nonflammable anesthetizing locations need not be conductive.

MIXED FACILITIES

If an operating or delivery suite contains both flammable and nonflammable anesthetizing locations, it is considered a mixed facility. In mixed facilities, each anesthetizing location must be labeled to indicate whether flammable agents are used there, or whether the location is to be used only for nonflammable anesthetics. Conductive flooring is required only in the flammable anesthetizing locations. All equipment, including portable X-ray equipment and furniture, intended for use in both flammable and nonflammable anesthetizing locations shall meet requirements for flammable locations.

The requirements for mixed facilities are essentially the same as requirements for flammable anesthetizing locations.

SUMMARY

If a facility has only flammable anesthetizing locations, the flammable locations must meet general requirements for all anesthetizing locations (described in *US Navy Medicine*, June 1977) as well as the specific requirements outlined above for flammable locations.

If a facility has only nonflammable anesthetizing locations, then only the general requirements for all anesthetizing locations need be met, and the locations shall be labeled nonflammable.

If a facility has both flammable and nonflammable anesthetizing locations, each room shall meet appropriate requirements depending on whether it is used for flammable or nonflammable anesthetics. But all equipment, including furniture and electrical equipment, must meet requirements for flammable anesthetizing locations.

Fees for Records

As prescribed in the NAVCOMPT Manual, paragraph 035887, Navy medical facilities must collect the following fees for providing copies of medical records to the public:

<i>Service</i>	<i>Fee</i>
Searching for and processing records	\$8 per hour
Typing	\$2 per page
Reproducing records	\$.05 per copy
Lending X-rays	\$1.50 per X-ray
Copying X-rays	\$1.50 per 8" x 10" copy \$2 per 10" x 12" copy \$3 per 14" x 17" copy

The minimum charge for providing copies of a medical record is \$5. The requester normally must pay fees in advance, unless the request is so urgent that a delay to wait for payment would adversely affect the requester.

Instructions and Directives

Guidelines for inpatient administration

Naval medical centers and hospitals should improve inpatient administrative procedures to ensure that active-duty inpatients return to duty as soon as they are medically fit. Inpatients should be discharged as soon as the physician dictates the narrative summary, without having to wait until the summary is transcribed and signed. (A suggested short discharge form is an enclosure to this instruction.) Patient affairs officers should follow up to make sure that narrative summaries reach the command and are placed in the health record after the patient is discharged.

Navy medical facilities should discharge active-duty patients whenever possible, instead of keeping them on the sick list. If a patient cannot be discharged to full duty, there are several alternatives:

- Discharge with continued treatment as an outpatient.
- Discharge with convalescent leave granted as "delay in reporting."
- Discharge to a medical holding company, for active-duty enlisted inpatients. A medical holding company is a special unit set up for convalescing patients who do not require inpatient care but are not yet ready for full duty.
- Discharge of active-duty officers to their command or, if this is not possible, to the commandant of their

naval district or a type commander while they recuperate and await full or limited duty orders.

Patients shall be discharged when medically indicated, without prior administrative scheduling on a duty party list. Naval medical facilities shall maintain the capability to discharge patients any time between 0800 and 2400, seven days a week, by staggering work hours or maintaining a specially trained watch.

As part of their utilization review program, naval hospitals and medical centers shall review policies on authorizing absence status for active-duty inpatients. Absence statuses include convalescent leave, annual leave, and authorization to subsist at home. As attending physicians submit recommendations to place inpatients in one of these statuses, the director of clinical services shall suggest a discharge alternative when appropriate. Convalescent leave for active-duty inpatients should be authorized only for patients who will require continued hospitalization on their return. In most cases, convalescent leave shall be granted concurrent with inpatient disposition as delay in reporting to the patient's command. Annual leave shall be granted to inpatients only in emergencies, and liberty authorized only in unusual circumstances or when the physician determines that liberty is a necessary part of treatment.—BUMED Instruction 6320.55 of 4 Feb 1977.

'A' and 'C' school grade transcripts

When hospital corpsmen graduate from "A" or "C" school, the training activity shall enter a transcript of their grades on NAVPERS 1070/613 (Administrative Remarks) and forward a copy to BUMED Code 34. Transcripts of courses completed after 1 Jan 1977 shall be placed permanently in the member's official service record. Transcripts of courses completed before 1 Jan 1977 are retained by BUMED until the member is separated from active duty, and are then sent to the National Personnel Records Center in St. Louis.—BUMED Notice 1510 of 9 Feb 1977.

Reporting procurement of nonstandard medical and dental materiel

Commands covered by this instruction must submit monthly reports of purchases of consumable medical and dental items by the 20th of the following month to the Naval Medical Materiel Command, 3500 S. Broad St., Philadelphia, Pa. 19145. Items are to be reported by National Stock Number, National Drug Code number, or Federal Supply Code manufacturer number plus manufacturer's catalog number.

Commands are to report on keypunched data cards, following punching and coding directions given in this instruction. Activities which do not have automated data processing capability may submit typed data on form NAVMED 6700/2.—BUMED Instruction 6700.20L of 31 March 1977.

Submitting Medical Board data

The first carbon copy of NAVMED 6100/1 (Medical Board Report Cover Sheet) must be submitted to the Naval Medical Regional Data Center for all patients who appear before a Medical Board, including patients referred to the Central Physical Evaluation Board. This requirement will be reflected in Change 90 to the *Manual of the Medical Department*.—BUMED Instruction 6100.5, change transmittal 2 of 1 April 1977.

Reporting inpatient workload and morbidity

These changes have been made in requirements for reporting inpatient workload and morbidity data:

- Reporting facility location codes will no longer be reported.
- The military theater of operations will no longer be reported.
- Professional services codes have been added for "vascular surgery" and "vascular surgery, pediatric."
- Activities must now identify active-duty enlisted patients who are discharged to a medical holding company.
- Activities must report data on military patients discharged with convalescent leave, giving the number of days of leave recommended or granted.—BUMED Instruction 6300.3, change transmittal 5 of 6 April 1977.

Requesting follow-up clinical information

When a patient is transferred or referred from a Navy health care facility to another military health care facility, the attending physician or dentist can ask for follow-up clinical information by sending DD Form 183 to the receiving hospital or attaching this form to the patient's clinical or health record. Patient affairs officers or medical/dental administrative officers should keep a list of each patient for whom follow-up information was requested, with the place to which the patient was transferred and the date of the transfer. If follow-up information is not received, the requesting facility should send a second request and, if that fails, seek help from BUMED Code 7.

Patient affairs officers at Navy medical centers and hospitals shall record names of inpatients referred by Medical Department representatives at other facilities. A copy of the narrative summary (SF 502) shall be sent to the referring physician or dentist within seven days after the patient's discharge. The director of clinical services is responsible for establishing a system to ensure timely and comprehensive responses to all requests for clinical follow-up information.—BUMED Instruction 6150.32A of 6 April 1977.

Medical holding companies

Each naval regional medical center, hospital, drug rehabilitation center and alcohol rehabilitation center is authorized to establish one medical holding company.

At naval activities other than regional medical centers and hospitals, the commanding officer shall:

- operate the medical holding company as part of the command.
- use medical holding company personnel to perform duties commensurate with their physical limitations.
- ensure that names of personnel in the medical holding company are properly recorded on the Manpower Management Information System report.
- designate a liaison officer or an officer in charge to run the medical holding company.

Commanding officers at regional medical centers and hospitals shall transfer eligible patients, with their records and accounts, from the inpatient facility to the medical holding company for temporary duty as outpatients, or for temporary additional duty if the person originally received temporary additional duty orders to enter the hospital. Patients assigned permanently to shore duty near the medical facility shall be discharged to the parent activity instead of to the medical holding company. When non-Navy enlisted patients are placed in the medical holding company, administrative procedures shall be coordinated with local units of the patient's service.

The CO shall also establish crossreferenced records in the hospital and medical holding company to ensure that personnel in a medical hold status are evaluated at least once a week and do not remain in the company longer than 60 days, including any convalescent leave. If the total convalescent period is expected to exceed 60 days, a medical board disposition shall be pursued.

On admission to the medical holding company, active-duty patients shall bring a copy of their inpatient admission/disposition record (NAVMED 6300/5). The medical holding company maintains this form until the patient is discharged, when the form is completed and forwarded to the appropriate activity for automated data processing.—BUMED Instruction 1306.72C of 7 April 1977.

Reporting interment expenses

Naval districts no longer need to submit quarterly reports on funeral and burial expenses paid to families of deceased Navy members. The report, Interment Allowance Review Data (MED 5360-10), will now be submitted annually, by 30 October, to BUMED (Code 734).—BUMED Instruction 5360.21B of 21 April 1977.

Disease alert reports

This instruction includes a revised list of communicable diseases on which Medical Department personnel should submit disease alert reports. The following diagnoses are new to the list: hepatitis A (infectious hepatitis), hepatitis B (serum hepatitis), Lassa fever, and Marburg virus disease.

Names of certain diseases have been revised in line with currently accepted nomenclature: Phlebotomus

fever is now called sandfly fever, African tick-borne fever is called boutonneuse fever, amebic dysentery or abscess is called amebiasis, and bacillary dysentery is called shigellosis. The description "arthropod-borne" has been added to viral encephalitis and hemorrhagic fevers.

Gonorrhea resistant to penicillin or to other drugs has been added to the list of infectious diseases which must be reported if numbers of patients exceed numbers normally expected for the area.

If a crewmember on a Navy ship contracts a communicable disease, a copy of the disease alert report should be sent to the medical officer of the appropriate fleet commander-in-chief, in addition to other addressees.

Specimens of cultures and acute and convalescent sera from patients with meningococcal meningitis shall be sent to the Neisseria Repository, Naval Biomedical Research Laboratory, Building 844, Naval Supply Center, Oakland, Calif. 94625.—BUMED Instruction 6220.3B of 22 April 1977.

Preventive Dentistry Program

Under the Navy's new Preventive Dentistry Program, all active-duty Navy and Marine Corps members shall receive:

- an annual oral examination.
- a self-applied or professionally applied stannous fluoride prophylaxis, in conjunction with a stannous fluoride treatment, once a year and before the member deploys or is transferred to an area where dental support is limited.
- an annual periodontal disease index examination.
- oral health instruction given individually or in group sessions.

Fluoride content of water supplies at Navy installations shall be adjusted in line with OPNAV Instruction 1130.1.

Each month, commanding officers of Navy and Marine Corps activities shall give the dental facility responsible for care of command members a list of personnel to be examined that month. Commanding officers shall also tell their personnel where to report for the dental exam. Personnel may be assigned for examination in any month from January through October.

A preventive dentistry program may be established for dependents, in line with Defense Department guidelines for dependent dental care at military facilities. Under DOD policy, routine dental care is authorized for dependents outside the U.S., and in designated areas in the U.S. where adequate civilian dental care is not available. Routine dental care includes general operative, surgical, and prosthodontic treatment, and other care furnished to active-duty military members. Emergency, adjunctive and preventive dental care is still authorized by law for all military dependents.—SECNAV Instruction 6600.1B of 2 May 1977.

Radiation physical examinations

A routine chest roentgenogram is no longer required as part of a radiation physical examination, but may be performed if clinically indicated.—BUMED Notice 6470 of 19 May 1977.

FY78 residency/fellowship training program

Accredited residency training programs are conducted at eight naval medical training hospitals in 30 specialties and subspecialties (see chart). A limited number of positions are available for Medical Corps officers to train at civilian institutions in specialties and subspecialties for which there is no inservice training program and for which there is a clearly defined Medical Department requirement.

Applications for training should be submitted by 15 Aug 1977 to the Commanding Officer, Naval Health Sciences Education and Training Command (Code 4), National Naval Medical Center, Bethesda, Md. 20014. BUMED Instruction 1520.10G of 12 May 1976 gives details on preparing applications. Applicants will be notified of the results in October 1977.—BUMED Notice 1520 of 26 April 1977.

RESIDENCIES/FELLOWSHIPS IN NAVAL ACTIVITIES INDICATING POSITIONS AT EACH YEAR LEVEL BY ACTIVITY

		Years of training Offered	Number of positions each yr	Bethesda Camp	Pendleton	Charleston	Jacksonville	Oakland	Pensacola	Portsmouth, VA	San Diego	Other
Aerospace Medicine	**	3	6					6				
Anesthesiology	**	2	18	4				4		4	6	
Dermatology	**	3	6	2							4	
Family Practice		3	35		9	9	9		8			
Hand Surgery		1	1								1	
Internal Medicine and Subspecialties	**	3	30	6				4		8	12*	
Cardiovascular Disease		2	4	2							2	
Endocrinology & Metabolism		2	1	1								
Gastroenterology		2	2	1							1	
Hematology/Oncology		2	3	1							2	
Nephrology		2	1								1	
Pulmonary Disease		2	4	1						1	2	
Neurology		3	3	3								
Neurosurgery	**	4	1	1								
Nuclear Medicine		2	2	2								
Obstetrics & Gynecology		4	16	3				3		6	4	
Occupational Medicine	**	3	1									1
Ophthalmology	**	3	8	3				2			3	
Orthopedic Surgery	**	4	12	2				3		3	4	
Otolaryngology	**	4	8	2				3			3	
Pathology		4	10	3				2		2	3	
Pediatrics		3	16	3				3		5	5	
Plastic Surgery		2	1							1		
Preventive Medicine (General)	**	3	1									1
Psychiatry	**	3	11	4				3		4		
Radiology	**	3	14	4				3			7	
Surgery	**	4	12	2				2		4	4	
Peripheral Vascular Surgery		1	1								1	
Thoracic & CV Surgery		2	2	1							1	
Urology		4	6	1				1		2	2	
TOTALS:			236	52	9	9	9	33	14	40	68	2

* This is a three year program.

** Indicates numbers of years training beyond GME year one.

Education & Training

Understanding Goes A Long Way

LT Gary J. Spinks, MSC, USN

LT Hiram H. Belding IV, MSC, USNR

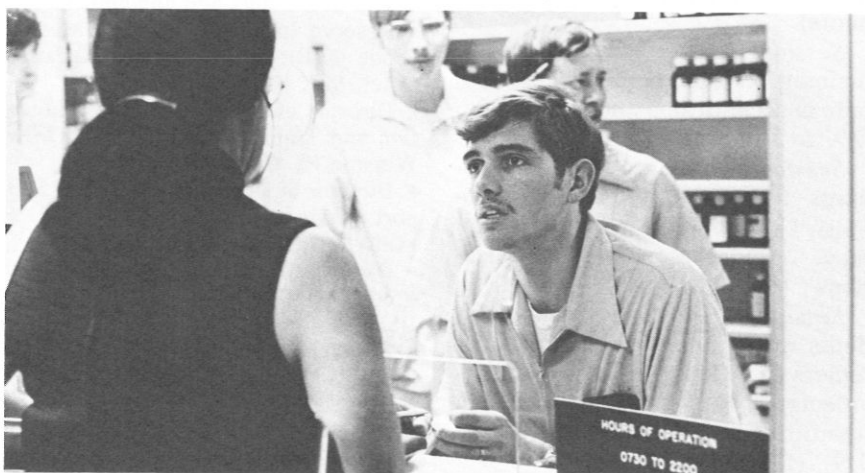
In any health care facility, there is likely to be at least an occasional incident or complaint which results from a patient's unsatisfactory contact with a staff member. If a staff member is discourteous or does not answer a patient's questions, the patient may get the impression that all the hospital's employees are insensitive to his emotional needs. He may then complain about the care he has received, even if the treatment of his medical condition was excellent.

To encourage courtesy toward patients, CAPT E.B. McMahon (MC), commanding officer of Naval Regional Medical Center Charleston, S.C., started a patient relations training program for staff members working in patient contact areas—including watch standers, security guards, corpsmen in branch clinics, and admission and information desk receptionists.

To be fully effective in caring for patients, staff members must consider the patient's family, ethnic and religious background as well as medical condition. So people who work in areas where the patient first "meets" the hospital learn about the social and environmental influences which shape a patient's behavior, and receive continuing education in patient-staff relations.

Previously, there were two such training programs in our command. Our general practice clinic con-

ducted a patient relations program taught by personnel from the local counseling and assistance center. The aim of this program—a loosely structured series of six seminars on human communications—was to reduce the number of patient complaints by teaching staff members the dynamics of interpersonal communication. Instructors used role playing techniques to teach listening skills.



Staff member politely answers patient's questions about prescription drugs

The other program, at the Naval Station branch clinic, took a different approach: students studied the *Navy Customer Service Manual*, and were required to master this material to qualify for advancement.

While these programs resulted in better patient relations, the courses were limited to a small group of regional personnel. We needed one general approach that would involve as many staff members as possible. We came up with a unique program that combines textbook lessons with films, videotapes, and sessions in

which students act out typical patient-staff encounters.

THE CHARLESTON PROGRAM

Our region-wide Patient Relations Program got under way in May 1976, with the goal of making staff members aware of the patient on a human level, as well as the professional level. We plan to send as many members of the staff as

possible through the program, and to ensure that the training runs continuously. Because there are not enough outside instructors for the large number of people who need the training, we designed a program which relies on our command's own resources.

We decided to use a socio-drama method of instruction. The socio-drama consists of several exercises in group role playing, after which students act out typical conflict-laden encounters between staff members and patients. This role playing is designed to make stu-

LT Spinks was administrative assistant to the director of administrative services, and is now assistant chief of the Patient Affairs Office, at Naval Regional Medical Center Charleston, S.C. 29408. LT Belding (Ph.D.) is a psychologist on the staff of NRMCC Charleston.

dents think about the possible effects of their behavior before they talk to a patient. We show movies and videotapes to illustrate the principles stressed in the socio-drama.

Each student gets a copy of the revised *Navy Customer Service Manual* (NAVPERS 10119). Written in a simple, readable style, the manual has illustrations and examples of interpersonal problems that may arise in a military environment. The four chapters are discussed separately during training sessions, and movies are shown to reinforce the material.

Here is the outline of our program:

Session 1. Half of students participate in socio-drama (accommodates 70 people) and view movie, "You in OPD [Outpatient Department]" (MN-10646). (2½ to 3 hours)

Session 2. One week later, remaining 50% of personnel participate in socio-drama and view movie. (2½ to 3 hours)

Session 3. One month later, students read Chapter 1, "Face-to-Face," in manual, and view videotape, "Interpersonal Communications" (H-A-PMB-917). (1 hour)

Session 4. One month later, students read Chapter 2, "Navy Customers and Their Needs," and view videotape, "Motivation Through Identification of Crisis" (H-A-PMB-919). (1 hour)

Session 5. One month later, students read Chapter 3, "Manning the Contact Point," and see videotape, "A System for Understanding Human Behavior, Part 1" (NN-30-71 No. 7131). (1 hour)

Session 6. One month later, students read Chapter 4, "The Team," and view Part 2 of "A System for Understanding Human Behavior" (NN-47-71 No. 7137). (1 hour)

Session 7. Examination is given. A second socio-drama is conducted to reinforce the principles and to instruct new staff members. (3 hours)

Session 7, which ends the program, also begins the next set of seven meetings. The whole pro-

gram is given twice a year.

The appeal of this format is its simplicity and the fact that it requires no assistance from other organizations. Its aim is to inspire the individual to set and reach self-formulated goals. When staff members show through their behavior that they have learned the principles of good patient relations, this

accomplishment is noted in their performance evaluations.

To test the program's effectiveness, we monitored our patients' complaints about staff members. After the second training session there was a dramatic reduction in the number of such grievances. Today, complaints about staff members' discourtesy are rare.

BUMED SITREP

NEW RESERVE BILLETS . . . The Surgeon General has named six inactive Reserve flag officers to new nationwide functional billets, where they will participate directly in management of the Navy's Medical Reserve. Until now, these officers were active only at the Surgeon General's request, on an ad hoc basis.

The new billets and appointees are:

- Reserve Inspector General, Medical (Code 00-R): RADM David B. Carmichael, MC, USNR-R
- Director of Medical Reserve Education and Training (Code 01-R): RADM Winston H. Weese, MC, USNR-R
- Director of Operational Medical Support (Code 3-R): RADM William J. Mills, MC, USNR-R
- Director for Medical Reserve Support (Code 4-R): RADM Victor P. Bond, MC, USNR-R
- Director for Aerospace Medicine (Code 5-R): RADM Harold M. Voth, MC, USNR-R
- Director for Medical Reserve Recruiting, Career Development and Communications (Code 6-R): RADM Matthias H. Backer, Jr., MC, USNR-R

In another Reserve development, a Medical Reserve Policy Board has been formed to deal with current concerns of medical Reservists.

WORD PROCESSING . . . National Naval Medical Center and NRMCMC Portsmouth, Va., are implementing COMPU-TEXT word processing systems. COMPU-TEXT, a mini-computer based system with text editing capability, is expected to improve the quality and efficiency of medical transcription and decrease transcription costs at the two facilities. NRMCMC San Diego, the first U.S. hospital to install COMPU-TEXT, eliminated a backlog of untranscribed

reports, and achieved a turnaround time of less than 72 hours for all dictated material, after using the system for three months.

BUMED's Health Care Administration Division is planning to install a centralized word processing system at BUMED.

UNIFORM ACCOUNTING . . . At the direction of the Defense Department, Navy, Army, and Air Force representatives are working on a standard accounting system for the three military medical services. Currently, cost and performance data from Army, Navy and Air Force medical facilities cannot be compared because the reports are prepared in different formats.

A tri-service task force, working in the Office of the Assistant Secretary of Defense for Health Affairs, will develop a standard chart of cost accounts. The chart will enable military medical services to allocate funds uniformly, and will make it easier to compare military medical facility cost data with similar data from civilian hospitals.

REGENT ADVISER NAMED . . . CAPT Eugene M. Bryant (MSC) has been appointed Navy regent adviser to the American College of Hospital Administrators' regent-at-large for uniformed service members. He will function as the liaison between the College and its Navy affiliates.

Membership in the American College of Hospital Administrators is open to administrative officers in hospitals and other health care programs. For information contact CAPT E.M. Bryant, MSC, USN, Commanding Officer, Naval School of Health Care Administration, National Naval Medical Center, Bethesda, Md. 20014, (Area code 202) 295-1204, Autovon 295-1204.

Back When

Hospital Apprentice Robert H. Stanley: Hero Lost in History

ENS Francis C. Brown, MSC, USN

The Medal of Honor is the highest award for bravery that a U.S. citizen can earn. Although the Medal is awarded in the name of Congress, the actual presentation of this coveted decoration is made by the President or by an official he appoints.

Hospital Apprentice Robert H. Stanley, USN, was the first hospital corpsman to earn the Medal of Honor. Several researchers have tried to track down information on Stanley, but little is known about the life of this early Hospital Corps hero.

We do know that he was born in Brooklyn, N.Y., on 2 May 1881. After enlisting in the Navy on 28 March 1898, Stanley was assigned to serve on the USRS *Vermont*.

Almost two years later, in June 1900, the Boxer rebellion erupted in China and the foreign legations in Peking were besieged. HA Stanley, then serving in the area, went with the first detachment of U.S. Marines to guard the legation quarter during the 56 days of the siege. The travails of that legation guard are described in this excerpt from the *Annual Report of the Surgeon General, U.S. Navy, 1901* (p 271):

The Marine Guard in Pekin was practically besieged, under almost constant fire, from about the middle of June until August 14. During this period they were not only subject to the usual hazards of war, but suffered the hardships due to

insanitary surroundings in a confined space, without suitable food or adequate facilities for the sick and wounded owing to the overcrowding. Of the total force of 56 officers and enlisted men, 7 were killed outright and 10 were wounded, 1 of the latter dying subsequently as a result of the wound and an intercurrent attack of typhoid fever.

According to one account (1), at one point the American legation had to get a message through to the English legation. Because the route to be traversed went through a quarter packed with rebels and the risk was great, the American minister, Mr. Conger, said he could not order anyone to go. When Conger asked for volunteers, HA Stanley immediately stepped forward. We know that Stanley completed his

important mission, but can only guess at the difficulties he encountered in running the Boxer gauntlet.

The Medal of Honor was presented to HA Stanley aboard the USS *Brooklyn*, in the presence of the entire crew, in 1902. The rest of Stanley's naval career is lost to history. He retired from the Navy on 1 Feb 1939 and died on 15 July 1942.

His citation, dated 19 July 1901, reads: "For distinguished conduct in the presence of the enemy in volunteering and carrying messages under fire at Peking, China, July 12, 1900."

REFERENCE

1. Mulholland, St. Clair A: *Military Orders-Congress Medal of Honor Legion of the U.S.* Philadelphia: Town Printing Co, 1905.



Early Medal of Honor



Marines defend Peking Legations during Boxer rebellion. Painting by John Clymer

ENS Brown is a member of the staff of Naval Regional Medical Center Philadelphia, Pa. 19145. He thanks John E. Lelle, secretary of the Orders and Medals Society of America, for assistance in preparing this article.

Clinical Notes

Prepackaging Topical Ointments and Creams

LCDR Larry L. Karch, MSC, USN

In the Pharmacy Service of Naval Regional Medical Center Charleston, S.C., yearly increases in workload have placed growing demands on all sections of the Service, particularly the compounding and prepackaging section. Topical preparations account for much of this section's workload. Staff members used to spend a considerable amount of time prepackaging topical ointments and creams into the various size jars required when one uses the traditional spatula method.

To save time, we developed a more efficient method of prepackaging topical ointments and creams.

METHOD

After a topical ointment or cream has been compounded, it is placed in a section of plastic tubing. The best tubing to use is 6 inches wide and 0.005 inches thick, and comes in rolls of 950 feet (NSN 8135-00-890-1843). A suitable length of tubing is heat-sealed across one end with a thermal impulse sealer (Figure 1), so that the tubing is converted into a bag. The open end of the bag is brought up through a metal ring attached to a ringstand, and spread out over another metal ring from which the ringstand extension has been removed (Figure 2). The top ring, with the plastic bag spread over it, is dropped down on the ring attached to the ringstand (Figure 3). A large, institutional-type kitchen spoon is then used to fill the bag with topical ointment or

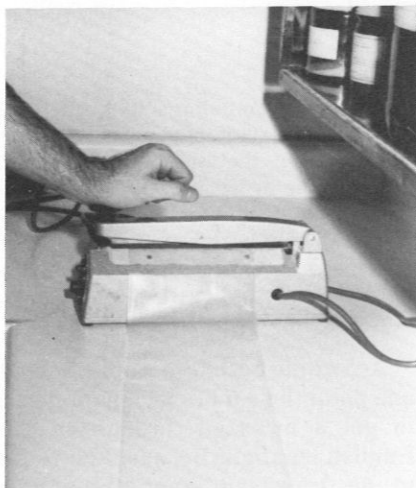


FIGURE 1. One end of tubing is heat-sealed in thermal impulse sealer.



FIGURE 2. Open end of bag is drawn through two rings.

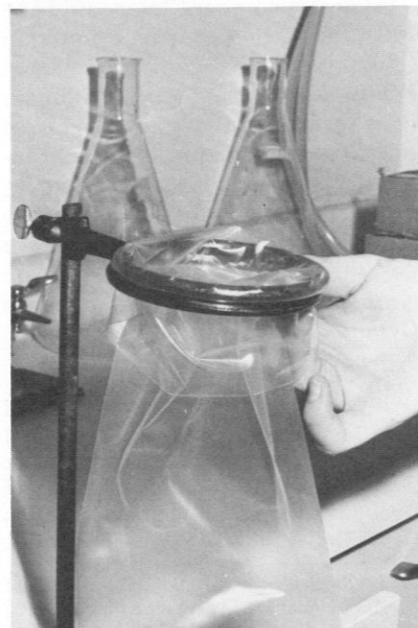


FIGURE 3. Top ring is dropped on lower ring to hold bag for filling.

cream. After the bag is filled, it is removed from the rings and ringstand, and the top is heat-sealed with the thermal impulse sealer (Figure 4). Excess plastic is trimmed from the top, and the bag, properly labeled, is stored until needed (Figure 5).

To prepackage the contents of the bag, a corner is cut away with scissors (Figure 6) and the bag is held over the jars to be filled. As the bag is squeezed at the top, its contents drop into the jars (Figure 7). Not counting the time required to remove and replace jar lids, a dozen two-ounce ointment jars can be filled this way in less than one minute; the exact filling time depends on the consistency of the ointment or cream. After the jars are labeled, they are ready to be dispensed.

When compounding is not required, the contents of large stock containers can be transferred to a plastic bag and then prepackaged in the same way.

LCDR Karch is chief of the Pharmacy Service, Naval Regional Medical Center, Newport, R.I. 02840. When he wrote this article, he was chief of the Pharmacy Service at Naval Regional Medical Center Charleston, S.C.

Preventive Medicine

The Right Way to Thaw Meat

Correct storage and handling of food is the key to preventing food-borne illness. Frozen foods must be thawed carefully because freezing tends to break down tissue cells, making the food much more susceptible to bacterial invasion after thawing.

NAVMED P-5010, *Manual of Naval Preventive Medicine*, outlines procedures for thawing meat: frozen meats must be thawed gradually under refrigeration—the ideal temperature range for thawing is 36°F to 38°F—in their original wrappings or containers. This procedure must be used to thaw any meat, including beef, pork, fish, and poultry.

An alternate method, outlined in NAVSUP 421, *Food Service Operations*, permits meat to be thawed at room temperature (70°F), provided the meat is thawed in its original wrapping or container. This alternate procedure was established primarily for small afloat units that do not have room for thaw boxes, and is not approved by BUMED as a blanket substitute for refrigerated thawing.

Some older large ships also do not have thaw boxes. BUMED recommends that these ships use their chill boxes or reach-in refrigerators for thawing meat; when chill spaces are inadequate for thawing food, the meat preparation room may be used, provided the room is air conditioned and meat is thawed in its original unopened container. This method is not a permanent solution to lack of thaw spaces: ships with inadequate thawing facilities should be refitted with meat thawing boxes.

These policies will be included in a forthcoming revision of Chapter 1 of the *Manual of Naval Preventive Medicine*.

Here are some other important points to remember in thawing meat:

- Thawed meats should not be refrozen.
- Meats must not be thawed by exposure to excessive heat or by immersion in water.
- Fans should not be used to speed thawing, because rapidly moving air dehydrates the meat.
- Meat should be used as soon as possible after thawing.

—Adapted from *Pacific Health Bulletin*, January 1977.



FIGURE 4. Bag is heat-sealed in thermal impulse sealer.

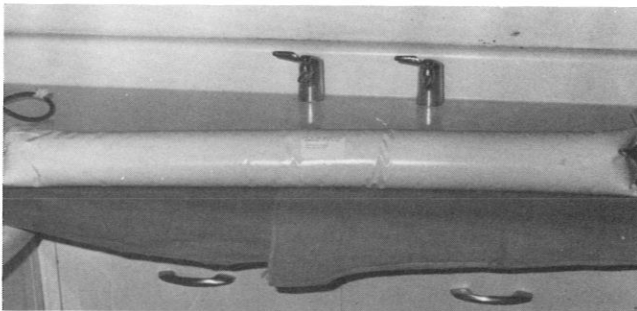


FIGURE 5. Labeled bag is ready for storage.

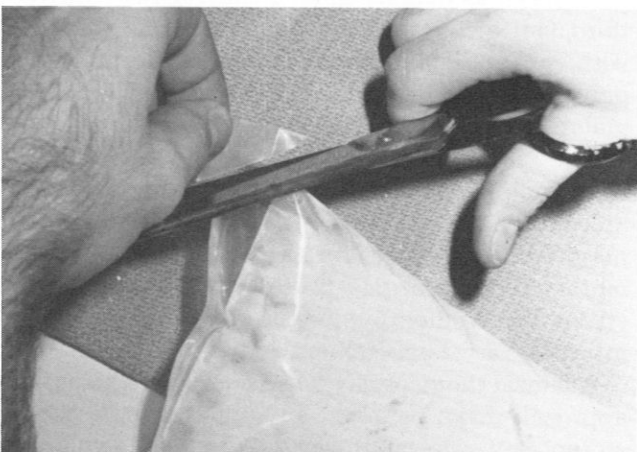


FIGURE 6. To transfer contents into jars, bag is cut at one corner.



FIGURE 7. Contents are squeezed into ointment jars.

The Mediastinal Mass: A Continuing Challenge to the Thoracic Surgeon

CDR J.A. Gibbons, MC, USN

M.J. O'Sullivan, M.D.

CAPT R.G. Fosburg, MC, USN (Ret.)

Although the histological classification and anatomic incidence of mediastinal masses have been clarified over the last 30 years (1-12), surgical management of patients with such masses may continue to present unique problems. In this paper, we review our 15-year clinical experience with surgery for mediastinal masses, and emphasize some continuing problems.

From 1960 through April 1976, at Naval Regional Medical Center San Diego, Calif., 129 patients underwent surgical exploration for a mediastinal mass. Of these patients, 66 were on active military duty, 44 were military dependents, and 19 were retired from the military or veterans of military service. Patients' ages ranged from one month to 75 years; the average age was 30 years. Each year of the study, from 3 to 15 patients underwent surgery.

Burkell's anatomic definitions (13) were used in this study. We made a simple map of the mediastinum and, following boundaries found on lateral chest X-rays, divided the chest into three areas:

- the anterior mediastinum—the region superior to the anterior border of the heart and extending back to the posterior mediastinum.
- the posterior mediastinum—the area posterior to the anterior border of the vertebrae.
- the middle mediastinum—the remaining area, over which the heart shadow is projected.

Dr. Gibbons is assistant chairman, Department of Cardiothoracic Surgery, Naval Regional Medical Center, San Diego, Calif. 92134. Dr. O'Sullivan, formerly a staff cardiothoracic surgeon at NRMC San Diego, is now in private practice at 210 S. Juniper St., Escondido, Calif. 92025. Dr. Fosburg, formerly chairman of the Department of Cardiothoracic Surgery at NRMC San Diego, is in private practice at 6279 Del Paso Ave., San Diego, Calif. 92120.

This paper was delivered at the first Pan American Congress on Diseases of the Chest, Lima, Peru, 1 June 1976.

Table I lists the anatomic locations of the masses we studied.

The masses were classified according to their tissue of origin (Tables II, III, and IV). Primary masses (originating in the mediastinum) and secondary masses were included.

All patients in the study presented with a mediastinal mass, as diagnosed on a chest X-ray. Only one-third (44) of the patients had symptoms (Table V), with chest pain and cough the most common. Sixty percent of patients whose masses were diagnosed as malignant had symptoms.

One hundred and forty-five preoperative studies were completed as part of the diagnostic evaluation. Since scalene node biopsy and mediastinoscopy did not provide diagnoses for any patients in this study, more definitive surgical procedures were undertaken (Table VI). Angiographic procedures were also used in preoperative assessment (Table VII).

A lateral thoracotomy was chosen for the surgical approach in 92 patients. In 31 patients, a median sternotomy was performed. Cervical exploration provided adequate exposure for surgery in six patients.

The mass was excised in 89 patients, and a portion of the mass was removed for biopsy in 38 patients. In two patients, the bulk of the mass was removed but residual tumor was left on vital structures. Resections for malignant masses included 19 excisions, 16 biopsies, and two partial resections.

There were no deaths related to surgery. Twenty-four patients had postoperative complications (Table VIII), all of which responded satisfactorily to therapy.

With the exception of four patients, cobalt radiation was administered to patients with a diagnosed malignant mass. Of the four exceptions, two patients

TABLE I. Anatomic Location of Masses

Mediastinum Area	Benign	Malignant	Total
Anterior	38	26	64
Middle	25	6	31
Posterior	29	5	34
Total	92	37	129

TABLE II. General Classification of Masses

Type of Mass	Benign	Malignant	Total
Neurogenic	15	1	16
Thymic	12	6	18
Teratoid	3	5	8
Lymphoma	0	15	15
Lymph node	18	8	26
Mesenchymal	4	1	5
Cyst	20	0	20
Aneurysm	2	0	2
Thyroid	7	0	7
Hernia	6	0	6
Other	5	1	6
Total	92	37	129

TABLE III. Malignant Masses

Type of Mass (No. of patients)	Anterior	Middle	Posterior	Total
Neurogenic (1) neuroblastoma			1	1
Thymic (6) malignant thymoma	6			6
Teratoma (5) embryonal	3	1		4
seminoma	1			1
Lymphoma (15) Hodgkin's disease	8	2	1	11
Hodgkin's thymus	3			3
lymphosarcoma	1			1
Lymph node (8) metastatic	3	2	3	8
Mesenchymal (1) rhabdosarcoma		1		1
Other (1) cancer of azygos lobe	1			1
Total	26	6	5	37

TABLE IV. Benign Masses

Type of Mass (No. of patients)	Anterior	Middle	Posterior	Total
Neurogenic (15) neurilemoma			8	8
neurofibroma			6	6
ganglioneuroma			1	1
Thymic (12) thymoma	6			6
hyperplasia	6			6
Teratoid (3) teratoma	2			2
dermoid	1			1
Lymph node (18) sarcoïd		4		4
histo-granuloma	2	2		4
coccidioidal granuloma		1		1
granuloma	3	2		5
hyperplasia	2			2
sclerosing mediastinitis	2			2
Mesenchymal (4) lipoma		1		1
desmoid		1		1
leiomyoma			1	1
mesenchymoma	1			1
Cyst (20) bronchogenic	4	5	5	14
enteric	1		3	4
pericardial		2		2
Aneurysm (2)	1		1	2
Thyroid (7)	7			7
Hernia (6) Morgagni's		2		2
Bochdalek's			3	3
paraesophageal		1		1
Other (5) sequestration		2	1	3
absence of pericardium		1		1
carcinoid		1		1
Total	38	25	29	92

TABLE V. Symptoms

	Malignant Mass N=37	Benign Mass N=92	Total
Chest pain	10	8	18
Cough	6	3	9
Dysphagia	1	3	4
Dyspnea	1	2	3
Fever	1	1	2
Arm edema	1	1	2
Weight loss	1	1	2
Myasthenia		2	2
Vomiting	1		1
Hemoptysis		1	1
Total	22 (60%)	22 (24%)	44 (34%)

TABLE VI. Diagnostic Evaluation

Procedure	Number
Bronchoscopy	28
Angiography	28
Tomography	22
Scalene node biopsy	15
Esophagoscopy	11
Thyroid scan	9
Barium swallow	8
Mediastinoscopy	7
Echogram	4
Bone marrow	3
Lung scan	3
Gallium scan	3
Bronchogram	2
Lymphangiogram	1
Myelogram	1
Total	145

TABLE VII. Angiographic Procedures

Procedure	Number
Aortogram	15
Pulmonary arteriogram	6
Superior vena cavagram	4
Complete heart catheterization	3
Total	28

TABLE VIII. Postoperative Complications

Complication	Number
Wound infection	6
Pleural effusion	3
Arrhythmia	2
Pneumothorax	2
Pneumohemothorax	2
Pulmonary insufficiency	2
Horner's syndrome	1
Pulmonary embolism	1
Empyema	1
Pericardial effusion	1
Chylothorax	1
Gastrointestinal bleeding (stress)	1
Total	23*

*18% of 129 patients seen in this study.

TABLE IX. Deaths (N=14)

Tumor (No. of patients)	Months from Surgery
Anaplastic lymph node (7)	4, 4, 4, 4½, 8, 8, 8
Hodgkin's (3)	4, 8 (suicide), 11
Embryonal (3)	4, 7, 7
Lymphosarcoma (1)	2

with Hodgkin's disease refused therapy and, early in the study, one patient with malignant thymoma was not offered radiation therapy; one patient with rhabdomyosarcoma is being treated with pulsed chemotherapy. Another two patients received radiation because of an initial diagnosis of malignancy; however, their masses subsequently proved to be benign.

Because the population we serve is very mobile, follow-up was incomplete. However, we know that 14 of the 37 patients with diagnosed malignancy died within 12 months (Table IX). In this group were seven of eight patients with metastatic lymph node involvement, and three of four patients with embryonal cell tumors.

SELECTING DIAGNOSTIC PROCEDURES

When first presented with a patient who has a mediastinal mass, the physician faces the problem of selecting helpful diagnostic procedures. The literature, in which a series of surgical patients is analyzed retrospectively, demonstrates that nearly all primary mediastinal masses require tissue examination to establish the diagnosis (14). The greatest value of diagnostic investigation is that it can differentiate between secondary and primary masses. Aneurysms, other cardiovascular lesions, hernias, and metastatic masses are frequently defined by contrast studies and limited biopsy procedures. Contrast studies—including examination of the barium-coated alimentary tract and angiography—may also be of value in determining the extent to which the mass involves adjacent mediastinal structures. As newer diagnostic techniques are developed, including echography, nuclear scanning, specific organ function testing, and more specific immunoserological testing, their usefulness in evaluating mediastinal masses must be assessed. Medical-legal considerations, teaching value, and research benefits of new techniques must be balanced against the cost effectiveness of these techniques when a battery of diagnostic procedures is planned to evaluate a mediastinal mass.

If the preliminary workup does not provide a specific diagnosis for a mediastinal mass, surgical exploration should be performed. The goals of surgery are to provide the specific histological diagnosis upon which to base a prognosis; to relieve symptoms; to prevent complications (15); and to ablate malignancies.

The most useful and definitive surgical approach for middle and posterior mediastinal masses is the lateral thoracotomy. Although limited access to the

anterior mediastinum can be gained through the cervical approach, anterolateral thoracotomy, or the parasternal route, we usually use median sternotomy, which provides optimal exposure for resection. Through the median sternotomy we also gain a good opportunity to obtain representative tissue for biopsy and to remove the greatest mass of tissue if debulking is indicated. The procedure makes it easier to avoid injuring vital structures and to handle complications (including use of cardiopulmonary bypass, if needed). The median sternotomy incision is usually less painful to the patient than a lateral thoracotomy, and allows ample exposure for the physician to accurately mark the borders of residual tumor with silver clips, which may facilitate subsequent radiation therapy.

The most frustrating problem generated by surgery for mediastinal masses is the difficulty of interpreting histology, especially on a frozen section basis. Interpretation is difficult because:

- it is often hard to obtain representative tissue samples.
- subtle histological criteria differentiate between specific entities in categories such as lymphoepithelial tissue.
- pathologists have limited experience with rare or unusual mediastinal masses.
- variations in the stages of the disease cloud the classic histological picture.
- tissue may undergo secondary alterations by infection, necrosis, radiation, chemotherapy, or trauma.

With the growing interest in use of immunotherapy for controlling solid malignant tumors, the role of surgery in managing tumors is changing (16-19). In "solid tumor therapy" and "combination therapy," several therapies are combined to accomplish a step-by-step diminution of the tumor. Combination therapy may include surgery for "debulking" the localized malignant tissue, radiation to sterilize the tumor bed, chemotherapy to diminish the metastatic load, and specific or nonspecific immunotherapy to control or eradicate small quantities of residual tumor.

CONCLUSIONS

Our review of the surgical management of mediastinal masses at Naval Regional Medical Center San Diego has enabled us to better define some continuing problems and has stimulated our interest in solving those problems. We found that the diagnostic workup of a mediastinal mass is most productive when a variety of contrast studies and limited biopsy

procedures are employed to define secondary and primary masses. These studies may also help assess whether the mass involves adjacent structures. A complete surgical exposure is then essential to acquire representative tissue samples to establish a correct histological diagnosis, preferably by using frozen sections. Resectable masses should be removed. In some cases of invasive malignancy, the physician should consider surgically reducing the tumor to facilitate subsequent adjunctive therapy.

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DON'T MISS

Febrile Illnesses Leading to Hospital Admissions in Indonesia

In Vietnam, American military physicians found it hard to differentiate between malaria, *Salmonella* infection, scrub typhus, leptospirosis, and group B arbovirus infection on the basis of clinical signs and symptoms, and common clinical laboratory tests. To find out whether bacteriological and serological methods are useful and clinically practical for diagnosing these serious febrile illnesses, and to better define which febrile illnesses are prevalent in Indonesia, Naval Medical Research Unit No. 2 scientists studied 741 patients admitted to seven Jakarta hospitals with fevers of unknown origin. The findings were reported in the *American Journal of Tropical Medicine and Hygiene* [25(1):116-121, Jan 1976].

Diagnoses were established for 248 of the 741 patients studied.

Bacteremia due to *Salmonella typhi* (150 patients), *S. enteritidis* (36 patients), or both (2 patients) was common in children and adults. Serological evidence of *Salmonella* infection was found in another 130 patients with no bacteremia.

Serological evidence of arbovirus infection was common in children, most of whom did not present with distinctive clinical signs and symptoms except for petechiae and purpura. Malaria was found in 12 adults. Little serological evidence was found for rickettsial, leptospiral, *Brucella*, *Toxoplasma gondii*, and a number of other infections. The researchers concluded that enteric fevers and arbovirus infections are the most common causes of fever requiring hospitalization in Jakarta.

Because clinical signs and symp-

toms were generally nonspecific, bacteriological and serological tests helped greatly to establish accurate diagnoses. For example, examining physicians incorrectly suspected *S. typhi* infection in 45% of 94 patients who were found to have significant arbovirus antibody titers. These patients were diagnosed incorrectly because people suffering from salmonellosis and arbovirus infections often exhibit the same symptoms. Serological testing for high or rising antibody titer was not sufficient by itself to establish the diagnosis of enteric fever—blood cultures were more reliable for establishing the presence of salmonellosis, and also provided a way to test for antibiotic resistance.

"Febrile Illnesses Resulting in Hospital Admission: A Bacteriological and Serological Study in Jakarta, Indonesia," by Karl E. Anderson and associates is available from U.S. Naval Medical Research Unit No. 2, APO San Francisco 96263. Ask for Report No. TR-693.

Pulp Response to Citric Acid Cavity Cleanser

CAPT William R. Cotton, DC, USN
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It is generally accepted that acid etching agents enhance the bonding and adaptation of composite restorative material to enamel (1). However, recent attempts to bond restorative material to dentin have been unsuccessful because no adhesives currently available will form water-resistant bonds to dentin that are comparable to the strong bonds formed with enamel (1).

Acid etchants are commercially available as cavity cleansers applied directly to dentin to remove debris, spalled enamel, and spalled dentin. Most acid cavity cleansers contain citric or phosphoric acid (2). Although there are conflicting reports on dental pulp response to a one-minute application of phosphoric acid on freshly exposed dentin (3,4), there is evidence that pretreating a cavity with phosphoric acid intensifies pulp reaction to composite resins (5). With one exception (6), available evidence indicates that pretreating exposed dentin with citric acid for one minute also intensifies pulp response to composite resins (5,7,8); however, the effect of citric acid on the pulp has not been studied. This investigation evaluated the effect of citric acid cavity cleanser on human dental pulp.

MATERIALS AND METHODS

Class V cavities were prepared on 45 caries-free first bicuspid teeth which were scheduled to be extracted for orthodontic purposes. Patients ranged in age from 10 to 19 years, with mean age of 11.9 years. A 5-mm-wide cavity was cut in the cervical third of the facial surface of each tooth with a 230 or 33½

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carbide bur, at 200,000 rpm, using an air-water spray coolant.

A cotton pellet soaked in citric acid cavity cleanser* was placed in the 23 experimental cavities for two minutes. Each cavity was flushed with a gentle stream of tepid water and dried with a cotton pellet. The 22 control cavities, prepared in contralateral bicuspid, were also flushed with water, but the cleanser was omitted. All teeth were restored with a fresh mixture of zinc oxide and eugenol (ZnOE). The teeth were extracted 1 to 4, 7 to 13, or 21 to 35 days after treatment.

After the specimens were fixed in formalin, they were demineralized in 20% formic acid, embedded in paraffin, sectioned serially and stained with hematoxylin and eosin. Histologic evaluation was based on criteria established by the American Dental Association (9).

RESULTS

As shown in the table, responses were seen more frequently in teeth treated with cavity cleanser than in control teeth, except that the frequency of hemorrhage and reparative dentin was the same for both groups. The difference in the frequency of responses between the control and experimental teeth was not statistically significant except for deep pulp response, which occurred significantly ($P < 0.01$) more often in teeth treated with cavity cleanser than in control teeth.

The degree of cellular displacement into the dentinal tubules (Figure 1) and the degree of superficial inflammatory response (Figure 2) and deep inflammatory response (Figure 3) were initially greater in the teeth treated with cavity cleanser, but decreased with time. The deep inflammatory response in the 1- to 4-day group was significantly ($P < 0.01$) more intense in teeth treated with cavity cleanser (Figure 3).

*Epoxytite 9060 Cavity Cleanser, Lee Pharmaceuticals, South El Monte, Calif. 91733.

CLINICAL AND HISTOLOGIC DATA

Specimen treatment	Number of specimens (45)	Mean postoperative interval	Mean remaining dentin thickness	Specimens with cellular displacement	Specimens with induced reparative dentin
Citric acid	6	2.5 days	1.38 mm	2 (33.3%)	0 (0.0%)
cavity cleanser	7	10.7 days	1.44 mm	2 (28.5%)	0 (0.0%)
+ ZnOE	10	29.0 days	1.36 mm	0 (0.0%)	1 (10.0%)
Total	23			4 (17.4%)	1 (4.3%)
ZnOE	6	2.5 days	1.49 mm	2 (33.3%)	0 (0.0%)
	8	10.5 days	1.38 mm	0 (1.0%)	0 (0.0%)
	8	29.0 days	0.95 mm	0 (0.0%)	1 (12.5%)
Total	22			2 (9.1%)	1 (4.5%)

*P < 0.01

Chi square with Yates' correction (df = 1) 0.145

0.001

DISCUSSION

SUMMARY

Results of this study indicate that citric acid cavity cleanser caused an initial deep inflammatory response which decreased with time. The cleanser's acidity, pH 3.2, probably caused this early deep response.

Our findings support observations reported by other researchers. Eriksen (7), who studied the combined effect of citric acid pretreatment and composite restorations, found that in cavities prepared in monkey teeth pretreatment with a 45% citric acid solution increased pulp response to composite resin. Stanley et al (5) found that a 50% citric acid solution intensified and prolonged the severity of pulp reactions when the acid solution was used with composite resin; they also found that composite resin by itself is toxic to the pulp.

Although there was no indication from the present study that citric acid cavity cleanser causes an irreversible pulp reaction, sound clinical judgment dictates that direct application of citric acid cleanser to freshly cut dentin should be avoided. Because of its harmful effect on the pulp, citric acid cavity cleanser is not justified for the purpose implied by its name: to cleanse the cavity.

Citric acid cavity cleanser can be applied with relative safety to dentin protected by an adequate base or liner (10). However, a base or liner would prevent the cleanser from acting on the dentin, in which case the citric acid cleanser would be acting primarily to etch the enamel walls.

Citric acid cavity cleanser is toxic to human dental pulp when applied to freshly cut dentin. The cleanser initially caused a significantly greater frequency and intensity of deep inflammatory responses, which decreased with time. Other histologic signs showed a similar, although not significant trend: the incidence and intensity of responses were greater in the pulps subjacent to cavities treated with citric acid.

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Specimens with superficial response	Specimens predominating in acute cells (superficial)	Specimens with deep response	Specimens predominating in acute cells (deep)	Specimens with hemorrhage
1 (16.6%)	1 (16.6%)	5 (83.3%)	2 (33.3%)	2 (33.3%)
1 (14.3%)	1 (14.3%)	2 (28.6%)	2 (28.6%)	2 (28.6%)
0 (0.0%)	0 (0.0%)	3 (30.0%)	0 (0.0%)	4 (40.0%)
2 (8.7%)	2 (8.7%)	10 (43.5%)	4 (17.4%)	8 (34.8%)
1 (16.6%)	1 (16.6%)	0 (0.0%)	0 (0.0%)	3 (50.0%)
0 (0.0%)	0 (0.0%)	1 (12.5%)	1 (12.5%)	3 (37.5%)
0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (25.0%)
1 (4.5%)	1 (4.5%)	1 (4.5%)	1 (4.5%)	8 (36.4%)

0.001 0.001 7.241* 0.573 0.040

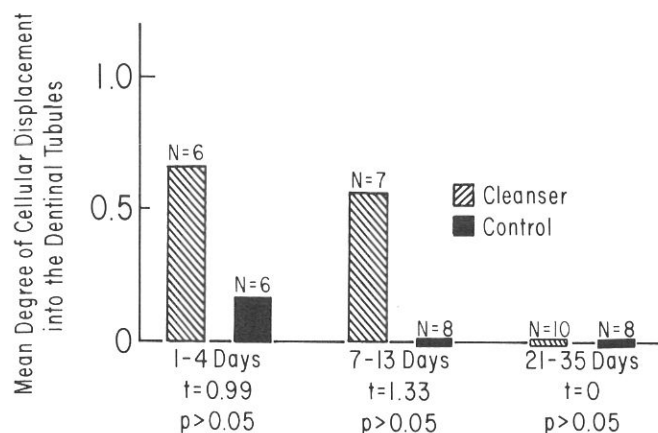


FIGURE 1. Cellular displacement into the dentinal tubules in response to citric acid cavity cleanser, arbitrarily graded on a scale of 0 to 3 (9).

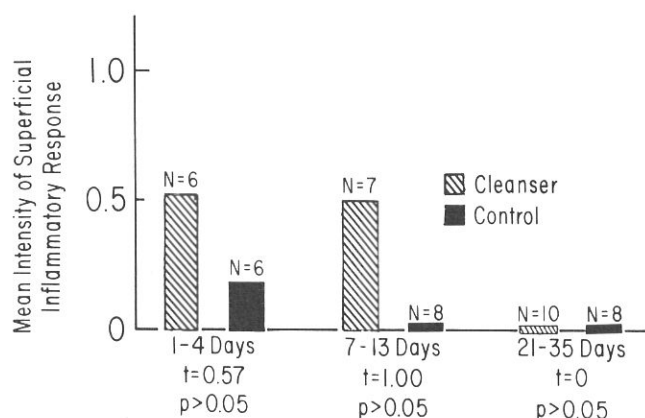


FIGURE 2. Superficial inflammatory response to citric acid cavity cleanser, arbitrarily graded on a scale of 0 to 4 (9).

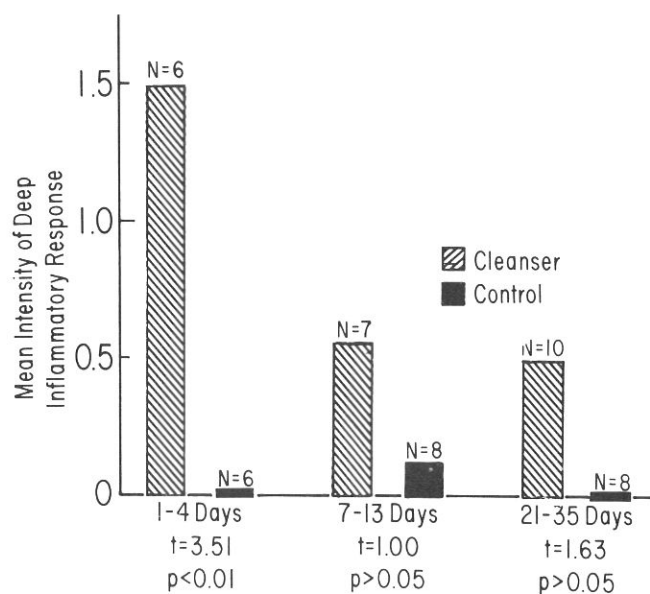


FIGURE 3. Deep inflammatory response to citric acid cavity cleanser, arbitrarily graded on a scale of 0 to 4 (9).

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